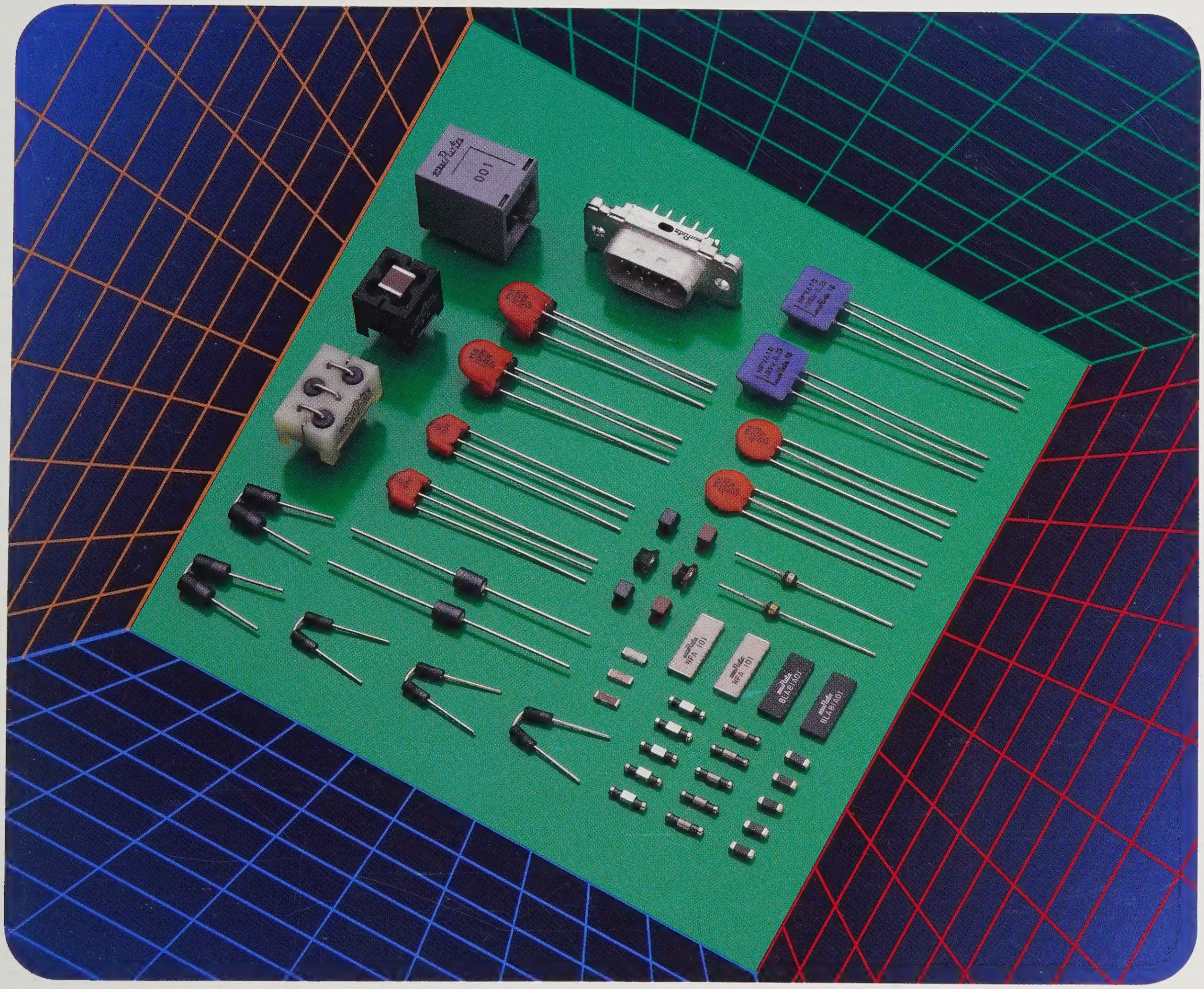
DC SIGNAL LINE FILTERS

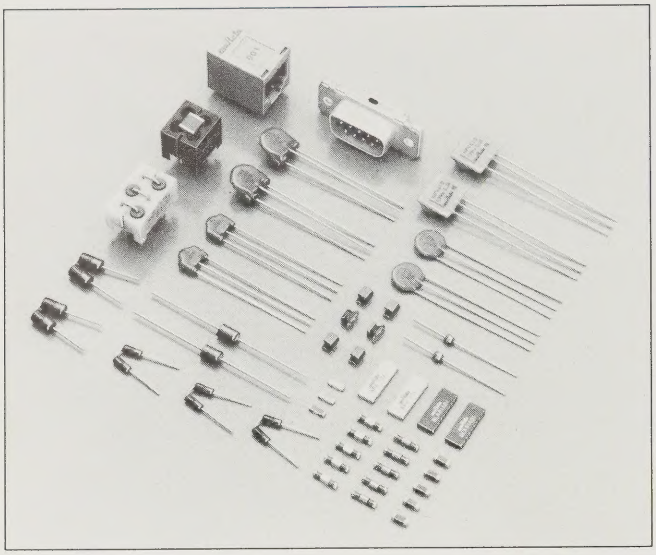
for Printed Circuit Board Applications

CATALOG NO. E-01-A



muRata ERIE®

MURATA ERIE NORTH AMERICA



Murata Erie manufactures EMI/RFI suppression filters based on years of experience in ceramic and ferrite technologies.

Murata Erie provides a line of highly reliable EMI/RFI filters for a wide range of applications including sophisticated space systems and consumer products such as TV's, radios and computers.

Please contact the nearest Murata Erie sales office for additional EMI/RFI suppression information and technical services.

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EMI SUPPRESSION FILTER KITS

muRata ERIE

EKO Series

EMI SUPPRESSION FILTER EMIFIL
EMI SUPPRESSION FILTER CHIP EMIFIL
muRata

Today, most designers find that there is just no way around using trial and error to select EMI filters. So, to help them do this as systematically as possible, we have created sample kits of EMI filters housed in a plastic case. When you need noise suppression for computers, these sample kits can help you make trial and error less troublesome than it was before. Our power line filter sample kit is for any application of EMI power line filtering.

SURFACE MOUNT CHIPS – Part No. EK115A

No.	Part Number	QTY	Description	No.	Part Number	QTY	Description
1	BLM21B03	20	Chip Solid Inductor	10	NFM41R00C221	40	Chip EMI Suppression Filter Solid Type
2	BLM21A05	100		11	NFM41R00C471		
3	BLM31A02			12	NFM41R10C102		
4	BLM32A06			13	NFM41R10C222		
5	BLM32A07			14	NFM41410C223		
6	BLM41A01			15	NFM61R00T361	20	Chip EMI Suppression Filter
7	NFM41R00C220	40	Chip EMI Suppression Filter Solid type	16	NFM61R10T102		
8	NFM41R00C470			17	NFM61R20T332		
9	NFM41R00C101						

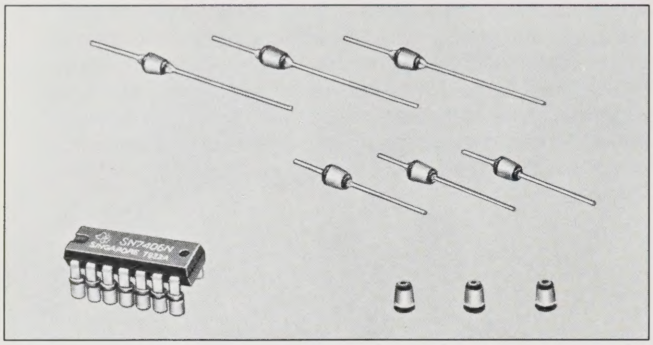
POWER LINE – Part No. EK025B

No.	Part Number	QTY	Description	No.	Part Number	QTY	Description
1	PLA1022A	2	Compact Common Mode Choke Coil, Non-Case Type	13	DSR1150-56 E472M VA2-EA	10	Safety Standard Recognized EMIFIL® For AC Power Supplies
2	PLA3021A	2		14	DSR1100-56 FZ472P VA2-EA	10	
3	PLA5021A	2		15	PLI-A0302	1	Noise Filter For AC Line Applications
4	PLA8021C	2	Case-Type	16	PLI-C1030	1	
5	PLH11L-6003R3	2	High Frequency Common Mode Choke Coil	17	PLI-C0303	1	
6	PLA1511R5	2		18	PLI-E0303	1	
7	PLE25H-1531R	1	Common Mode Choke Coil	19	PLI-S0303	1	
8	PLE25H-2023R	1		20	PLF-C1030	1	
9	PLC20LD-3031R	1		21	PLT1R53C	5	Common Mode Choke Coil
10	PLC20HD-7030R5	1		22	BNX002-01	5	DC Power Line Filter
11	DSR1100-56 E22M VA2-EA	10	Safety Standard Recognized EMIFIL® For AC Power Supplies	23	BL02RN2-R62	50	Ferrite Bead
12	DSR1120-56 E302M VA2-EA	10					

COMPUTING DEVICE – Part No. EK015C

No.	Part Number	QTY	Description	No.	Part Number	QTY	Description
1	BNX002-01	3	DC Powerline Filter	19	DSS306-55Y5S471M 100V	50	3 Lead Disc Filter With Ferrites
2	BNP002-03	3	Signal Line Filter	20	DSS306-55Y5S102M 100V	50	
3	DF221-601SS152GMV50	30	Subminiature Semiconductor	21	DSS306-55Y5U222Z 100V	50	
4	BL01RN1-A62	50	Ferrite Bead Inductors	22	DSS306-55FZ103N 100V	50	
5	BL02RN2-R62	50		23	DSS306-55FZ223Z 16V	50	
6	BL03RN2-R62	50		24	DS310-55Y5S223S 50V	20	3 Lead Disc Filter
7	BLM31A02	20	Chip Ferrite Bead	25	DS310-55Y5S104M 16V	20	
8	BLM41A04	20		26	DSS310-55Y5S220M 100V	20	3 Lead Disc Filter With Ferrites
9	DS306-55Y5S470M 50V	20	3 Lead Disc Filter	27	DSS310-55Y5S470M 100V	20	
10	DS306-55Y5S101M 50V	20		28	DSS310-55Y5S101M 100V	20	
11	DS306-55Y5S271M 50V	20		29	DSS310-55Y5S271M 100V	20	
12	DS306-55Y5S102M 50V	20		30	DSS310-55Y5S222M 100V	20	
13	DS306-55Y5S222M 50V	20		31	DSS310-55Y5S223S 100V	20	
14	DS306-55FZ103Z 50V	20		32	DSS710-D223S12-22	5	Varistor/Capacitor
15	DSS306-55Y5S220M 100V	50	3 Lead Disc Filter With Ferrites	33	NFV610-655T2A106 100V	5	Noise Suppression Filter
16	DSS306-55Y5S470M 100V	50		34	NFV610-655T2A206 100V	5	
17	DSS306-55Y5S101M 100V	50		35	NFV610-655T2A506 100V	5	
18	DSS306-55Y5S221M 100V	50		36	NFV610-655T2A107 100V	5	

FEED-THRU CAPACITORS
SUBMINIATURE SEMICONDUCTOR
DF220, DF221, DF430, TF240 & DF331 Series



Since the input and output terminals of these feed-thru capacitors are isolated and the inductance on the grounded side is very small, they can be used effectively to very high frequencies.

These devices are suitable for suppression of radiation from TV tuners, car radios, car stereos and transmission devices and provide enhanced protection from external noise sources.

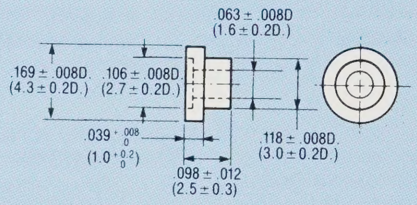
These subminiature feed-thrus, which may be incorporated in .100″ (2.54mm) pitch connectors, are ideal for miniaturizing electronic equipment.

FEATURES

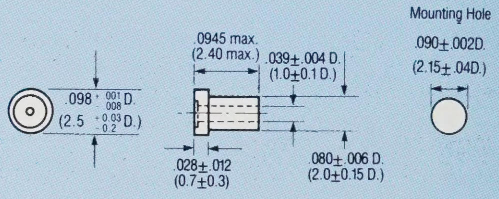
- **The use of barrier layer capacitors has resulted in smaller size and larger capacity than possible with conventional capacitors.**
- **The nickel alloy electrode is resistant to soldering heat and is free from migration in high humidity environments.**
- **Compact electronic devices can be achieved by incorporating this capacitor with a .100″ (2.54mm) pitch packaging density—such as installation in connectors.**
- **Simple construction allows mass production assembly techniques.**

DIMENSIONS: in. (mm)

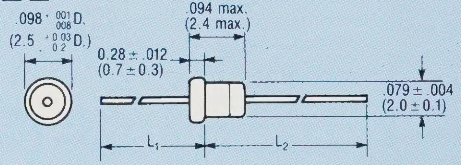
DF430



DF220-00

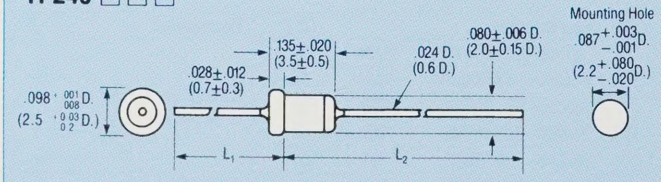


DF221-☐☐☐



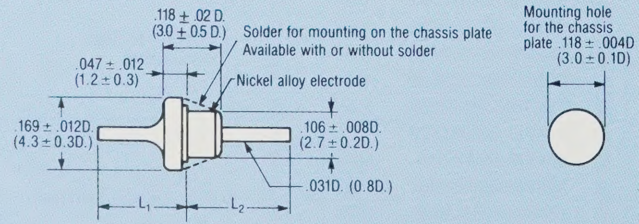
Part Number	Lead	
	L1	L2
DF221-601	.394 ± .039 (10.0 ± 1.0)	.787 ± .079 (20.0 ± 2.0)
DF221-602	.787 ± .079 (20.0 ± 2.0)	.787 ± .079 (20.0 ± 2.0)

TF240-☐☐☐



Part Number	Lead	
	L1	L2
TF240-601	.394 ± .039 (10.0 ± 1.0)	.787 ± .079 (20.0 ± 2.0)
TF240-602	.197 ± .039 (5.0 ± 1.0)	.472 ± .039 (12.0 ± 1.0)
TF240-603	.197 ± .039 (5.0 ± 1.0)	.276 ± .039 (7.0 ± 1.0)

DF331-☐☐☐



Part Number	Lead		Solder for mounting on the chassis plate
	L1	L2	
DF331-812	.256 (6.5)	.374 (9.5)	Provided
DF331-895	.256 (6.5)	.374 (9.5)	None
DF331-805	.551 (14.0)	.787 (20.0)	None

*Other lead wire lengths are available. Please contact your nearest Sales Office for more detail.

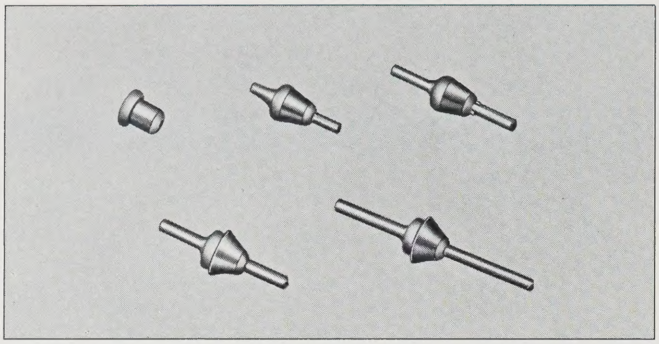
FEED-THRU CAPACITORS
SUBMINIATURE SEMICONDUCTORS
DF220, DF221, DF430, TF240 & DF331 Series

SPECIFICATIONS

Part Number*	Cap. Value	Cap. Tol.	WVDC	Insertion Loss at 25°C		
				10MHz	100MHz	1GHz
DF220						
DF220-00SL020U50	2pF	+0 −100%	50V	—	—	—
DF220-00SL150M50	15pF	±20%	50V	—	—	6
DF220-00SL220M50	22pF	±20%	50V	—	—	7
DF220-00YN430M50	43pF	±20%	50V	—	1	15
DF220-00B121M50	120pF	±20%	50V	—	3	20
DF220-00B221M50	220pF	±20%	50V	—	7	25
DF220-00B471M50	470pF	±20%	50V	—	12	30
DF220-00E102Z50	1000pF	+80, −20%	50V	3	18	35
DF220-00SS152GMV50	1500pF	+200, −0%	50V	5	20	40
DF221						
DF221-□□□SL020U50	2pF	+0, −100%	50V	—	—	—
DF221-□□□SL150M50	15pF	±20%	50V	—	—	6
DF221-□□□SL220M50	22pF	±20%	50V	—	—	7
DF221-□□□YN430M50	43pF	±20%	50V	—	1	15
DF221-□□□B121M50	120pF	±20%	50V	—	3	20
DF221-□□□B221M50	220pF	±20%	50V	—	7	25
DF221-□□□B471M50	470pF	±20%	50V	—	12	30
DF221-□□□E102Z50	1000pF	+80, −20%	50V	3	18	35
DF221-□□□SS152GMV50	1500pF	+200, −0%	50V	5	20	40
DF430						
DF430-0SS332GMV50	3300pF	+200, −0%	50V	10	25	45
TF240						
TF240-□□□SL020D50	2pF	±0.5pF	50V	—	—	—
TF240-□□□SL220M50	22pF	±20%	50V	—	—	7
TF240-□□□B331M50V	330pF	±20%	50V	—	10	27
TF240-□□□E102GMV50	1000pF	+200, −0%	50V	3	18	35
TF240-□□□SS332Z50	3300pF	+80, −20%	50V	10	25	45
DF331						
DF331-□□□SL020D50	2pF	±0.5pF	50V	—	—	—
DF331-□□□SL100G50	10pF	±2pF	50V	—	—	—
DF331-□□□SL220M50	22pF	±20%	50V	—	—	7
DF331-□□□SL330M50	33pF	±20%	50V	—	—	12
DF331-□□□YN470M50	47pF	±20%	50V	—	—	15
DF331-□□□YN101M50	100pF	±20%	50V	—	2	19
DF331-□□□E102GMV50	1000pF	+200, −0%	50V	3	18	35
DF331-□□□SS332GMV50	3300pF	+200, −0%	50V	10	25	45

For other capacitance values consult factory. • Operating Temp. Range: −25°C to +85°C • Insulation Resistance: 1000MΩ min. *□□□—See DIMENSIONS

TF318 & TF418 Series



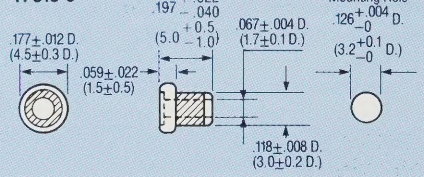
These feed-thru capacitors are designed for high frequency requirements, by-pass applications in VHF and UHF communications equipment and noise filters for car radios, car stereos and two-way radios.

These devices feature simple construction, small size and nickel plated electrodes.

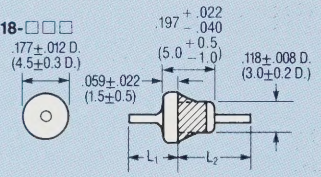
They are migration free and have high thermal strength, mechanical strength and resistance to soldering heat. Ease of mounting makes them ideal for new and conventional feed-thru applications.

DIMENSIONS: in. (mm)

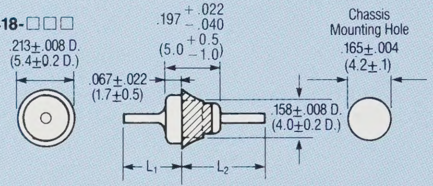
TF318-0



TF318-□□□



TF418-□□□



Type	Lead Dia.	L_1	L_2
TF318-850	.032 (0.8)	.984±.079 (25.0±2.0)	1.18±.079 (30.0±2.0)
TF318-853		.551±.040 (14.0±1.0)	.591±.040 (15.0±1.0)
TF318-855		.374±.020 (9.5±0.5)	.433±.020 (11.0±0.5)
TF318-053	.040 (1.0)	.433±.040 (11.0±1.0)	.650±.040 (16.5±1.0)
TF318-055		.276±.028 (7.0±0.7)	.244±.028 (6.2±0.7)
TF318-450	.055 (1.4)	$.177^{+.040}_{-.020}$ $(4.5^{+1.0}_{-0.5})$	.295±.040 (7.5±1.0)
TF318-452		.276±.040 (7.0±1.0)	.354±.040 (9.0±1.0)

Type	Lead Dia.	L_1	L_2
TF418-452	.055 (1.4)	.283±.040 (7.2±1.0)	.347±.040 (8.8±1.0)
TF418-454		.402±.040 (10.2±1.0)	.543±.040 (13.8±1.0)

SPECIFICATIONS

Part Number	Cap.	Cap. Tol.	Temp. Char.	Rated Volt.
TF318-□SL100G50V	10pF	±2pF	SL	50VDC
TF318-□SL220M50V	22pF	±20%	SL	50VDC
TF318-□SL330M50V	33pF	±20%	SL	50VDC
TF318-□SL470M50V	47pF	±20%	SL	50VDC
TF318-□YN101M50V	100pF	±20%	YN	50VDC
TF318-□B271M50V	270pF	±20%	B	50VDC
TF318-□B471M50V	470pF	±20%	B	50VDC
TF318-□E102GMV50V	1000pF	$^{+200}_{-0}$ %	E	50VDC
TF318-□E152P50V	1500pF	$^{+100}_{-0}$ %	E	50VDC

Part Number	Cap.	Cap. Tol.	Temp. Char.	Rated Volt.
TF418-□E102GMV300V	1000pF	$^{+200}_{-0}$ %	E	300VDC
TF418-□E152P300V	1500pF	$^{+100}_{-0}$ %	E	300VDC

□ Denotes configurations shown above.
Examples:
TF318-450B271M50V
TF418-452E102GMV300V

PART NUMBERING

TF318-450 E 102 GMV 50V

Type and Dimensions — TF318-450
Temperature Characteristic — E
Nominal Capacitance — 102
Cap. Tolerance — GMV
Rated Voltage — 50V
TF318–50V–ONLY
TF418–300V–ONLY

Code	Max. Cap. Change	Temp. Range
B	±10%	−25°C to +85°C
E	$^{+20}_{-55}$ %	−25°C to +85°C

Code	Temp. Coefficient
SL	+350 to −1000 ppm/°C
YN	−500 to −5800 ppm/°C

FEED-THRU CAPACITORS
DISC TYPE FOR INDUSTRIAL APPLICATIONS

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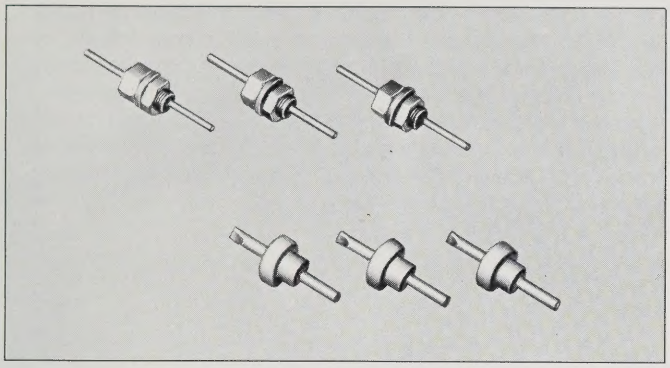
DF553 & DF572 Series



Feed-thru capacitors DF553 and DF572 for industrial application are disc-type feed-thrus mounted in a case and epoxy sealed. They are suitable for microwave repeaters and measuring instruments, and for preventing unnecessary feed-back between circuits, suppressing external noise, and preventing emission of radiation.

Unlike cylindrical capacitors, these disc-type capacitors do not exhibit reduction in insertion loss caused by coaxial resonance. They are applicable to a wide frequency range including the UHF band.

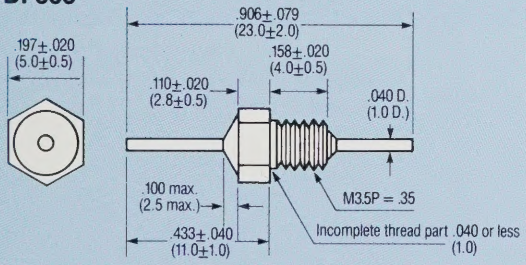
FEATURES

- **Provide ideal separation of circuits with excellent shielding qualities.**
- **Eliminate reduction in insertion loss caused by coaxial resonance. The capacitor is effective in UHF band and above due to minimal lead inductance.**
- **Epoxy sealing has excellent moisture resistance and reliability characteristics.**
- **Screw-mount DF553 type can be installed with the use of nuts or directly mounted on chassis with threaded holes. Solder-mount DF572 type can be directly solder mounted on chassis and PC boards.**

DIMENSIONS: in. (mm)

Threaded Application

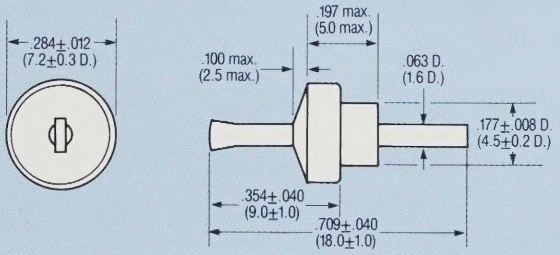
DF553



Note:
Accessory nut & washer supplied

Solder Application

DF572

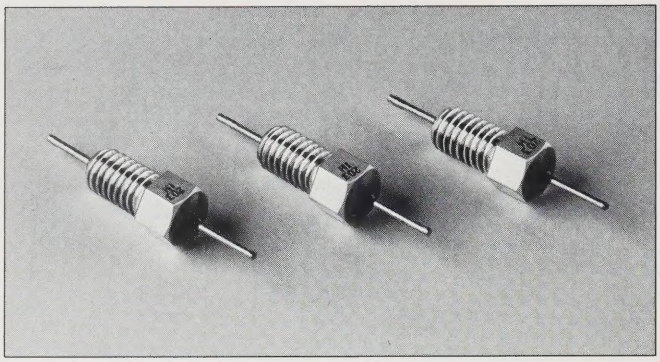


SPECIFICATIONS

Part Number	DF553F102P50	DF572-10F102P500
Capacitance Value	1000pF	1000pF
Capacitance Tolerance	$^{+100}_{+\ 0}$ %	$^{+100}_{-\ 0}$ %
Rated Voltage	50VDC	500VDC
Dielectric Strength	125VDC	1250VDC
Insulation Resistance	10000MΩ	10000MΩ
Temperature Characteristic	$^{+30}_{-80}$ %	$^{+30}_{-80}$ %
Maximum Feed-Thru Current	10A DC	15A DC
Operating Temperature Range	−25°C to +85°C	−25°C to +85°C

FEED-THRU CAPACITORS
HIGH FREQUENCY APPLICATIONS

DFT301 & DFT304 Series



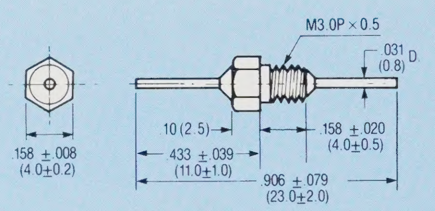
The DFT301 Series uses monolithic feed-thru capacitors and the DFT304 Series uses barrier layer feed-thru capacitors resulting in compact sized, large capacitance, high frequency devices. They are very suitable for applications in microwave repeaters, communications, broadcast equipment and measuring instruments for elimination of external noise, prevention of emission of radiated noise and for the prevention of unnecessary feedback between circuits.

FEATURES

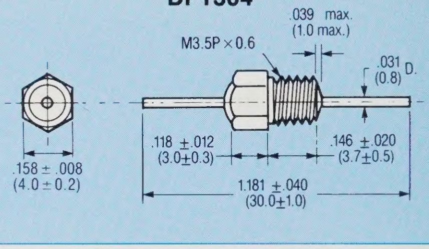
- **Provides ideal separation of circuits with excellent shielding qualities.**
- **Provides large capacitance values in epoxy sealed metal bushings, minimizing reduction in insertion loss caused by coaxial resonance.**
- **Miniaturized screw mount styles that can be installed with mounting nuts or directly mounted on chassis with threaded holes.**
- **Provides high insertion loss to 1GHz and beyond in the case of the DFT301 and up to 10GHz in the DFT304 Series.**
- **Provides relatively high feed-thru current ratings.**
- **Ceramic capacitors utilized exhibit very stable temperature characteristics.**

DIMENSIONS: in. (mm)

DFT301



DFT304



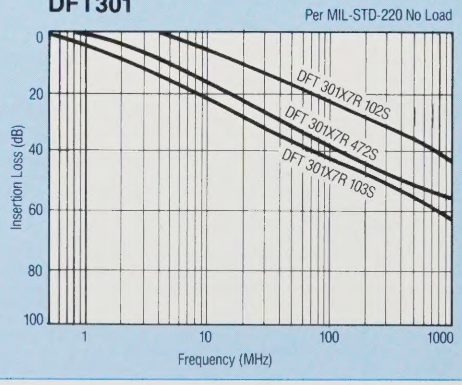
SPECIFICATIONS

Part Number	Marking	Cap. Value	Cap. Tolerance	Rated Voltage	Dielectric Strength	Rated Current	Insulation Resistance (min.)	Temperature Characteristics	Operating Temperature Range
DFT301-801 X7R 103S 50V	None	10000pF	+50 –20%	50VDC	125VDC	10ADC	10000MΩ	±15%	–55°C to +125°C
DFT301-801 X7R 472S 50V	B	4700pF	+50 –20%	50VDC	125VDC	10ADC	10000MΩ	±15%	–55°C to +125°C
DFT301-801 X7R 102S 50V	C	1000pF	+50 –20%	50VDC	125VDC	10ADC	10000MΩ	±15%	–55°C to +125°C
DFT304-803 SS332Z	None	3300pF	+80 –20%	50VDC	125VDC	7ADC	1000MΩ	±22%	–55°C to +125°C

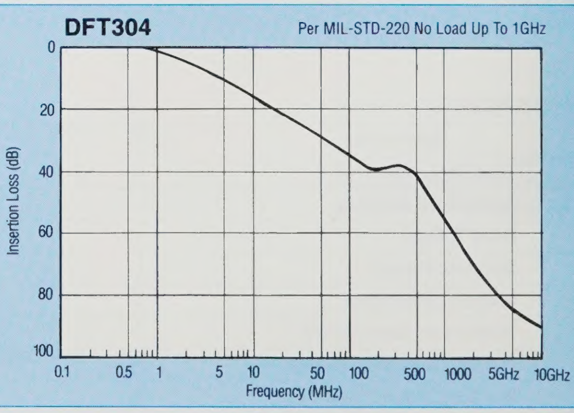
Torque for fastening nuts: DFT301 .... 3.5 through 4 kg/cm2
DFT304 .... 3.5 through 4 kg/cm2

INSERTION LOSS CHARACTERISTICS

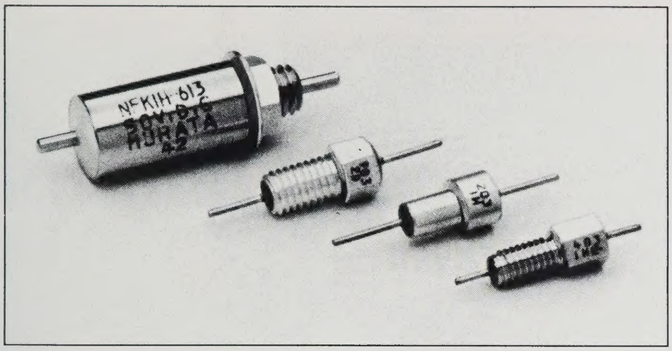
DFT301



DFT304



EMI SUPPRESSION FILTERS
BROAD-BAND FEED-THRU TYPES
NFS401, NFT403, NFT501 & NFK1H Series



APPLICATIONS

Engine controls, ECR, POS, computer and peripheral equipment, digital instruments: mobile telephones, satellite broadcast receivers, radio-telephones, microwave repeaters, measuring equipment.

The NFS401 Series, a solder mounting type, can be soldered directly on chassis or printed circuit board.

The NFT501, NFT403 and NFK1H-610 Series, a screw mounting type, can be mounted directly on a chassis with nuts or threaded directly into a chassis.

EMI suppression filters NFS401, NFT403, NFT501 and NFK1H Series are compact, high performance EMI suppression filters using a disc-type multilayer feed-thru capacitor.

Because large insertion losses are provided over wide frequency ranges, they are most suited for interference suppression at high radio frequencies and preventing undesired radiation in automobile telephones, electronic engine control equipment, microwave repeaters, measuring instruments, etc.

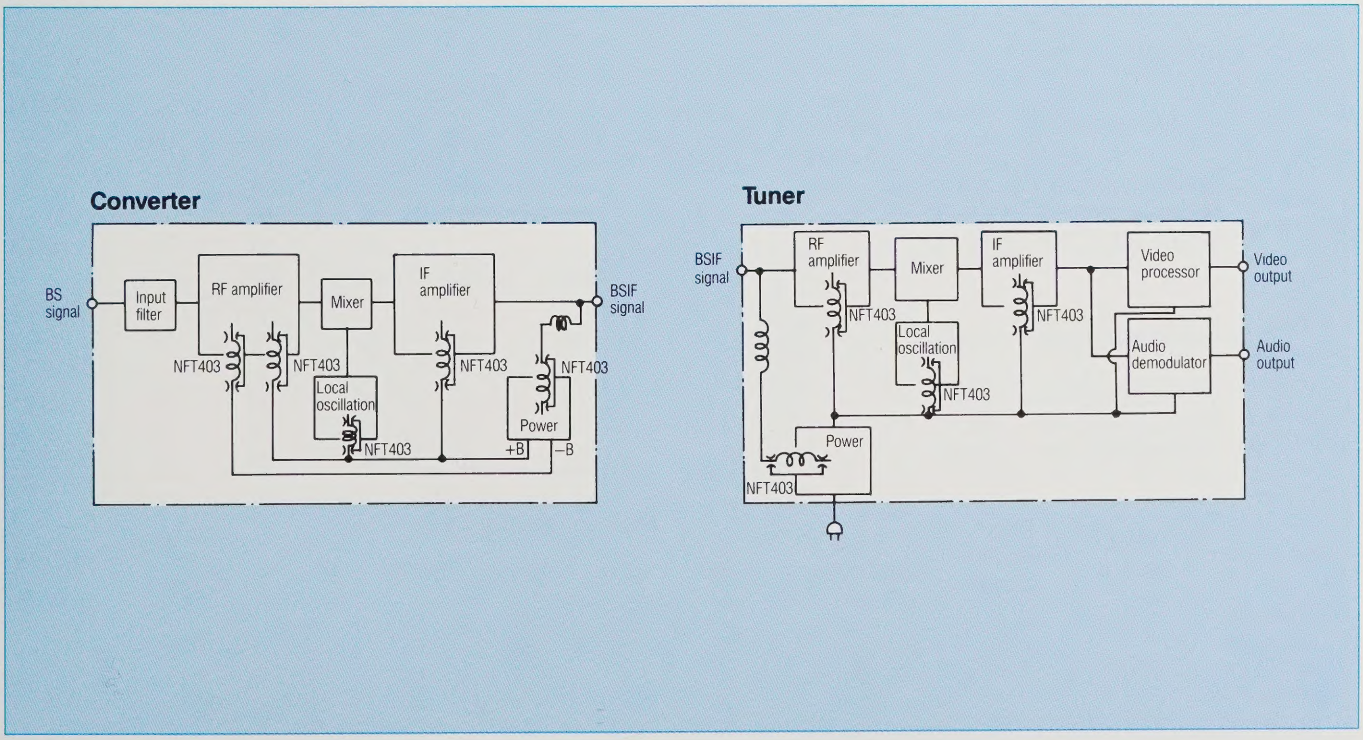
FEATURES

- **High shielding effect, compactness, and high performance through the use of a disc-type multilayer feed-thru capacitor.**
- **Effective up to the microwave ranges because of minimal lead inductance.**
- **Epoxy resin sealing assures high reliability and high resistance to humidity.**

PRECAUTIONS FOR USE

1. When attaching, use a washer. Attach with torque between 4.0 and 4.5 kg/cm.
2. Remove any insulating material, such as paint, from the chassis the filter is to be secured to. This ensures a good electrical connection to the chassis.
3. To fully utilize the EMI suppression effect of the EMI filter, mount it on a chassis which has low impedance to the ground.
4. Quickly solder the lead wires at a temperature below 250°C to prevent internal solder reflow.
5. Nut and washer are not standard items but are available by special order.

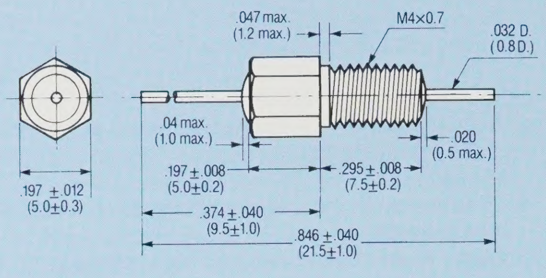
EXAMPLE OF USAGE IN SATELLITE BROADCAST RECEIVERS



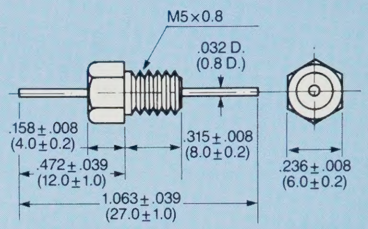
EMI SUPPRESSION FILTERS
BROAD-BAND FEED-THRU TYPES
NFS401, NFT403, NFT501 & NFK1H Series

DIMENSIONS: in. (mm)

NFT403

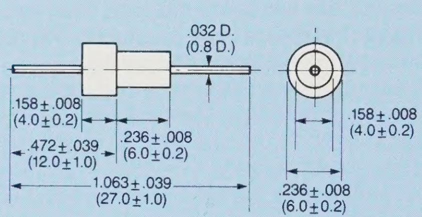


NFT501

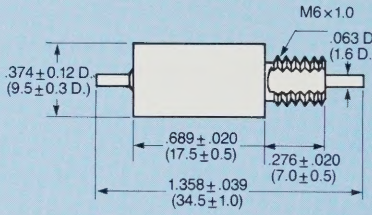


Standard nuts (M5×0.8) as supplied

NFS401



NFK1H



Standard nuts (M6×1.0) as supplied

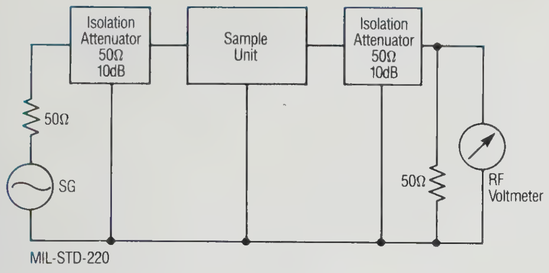
SPECIFICATIONS

	Part Number	Rated Voltage	Rated Feed-Thru Current	Circuit Construction	Minimum Insertion Loss (dB)					Operating Temp. Range
					10MHz	20MHz	50MHz	100MHz	1GHz	
Solder Mounting	NFS401-801D1H203	50VDC	10A	Pi	20	44	65	75	75	−55°C to +125°C
	NFS401-801D2A353	100VDC			—	23	48	65	75	
	NFS401-801D2D903	200VDC			—	—	28	48	75	
					10MHz	40MHz	100MHz	1GHz	10GHz	
Screw Mounting	NFT403-806D1H403	50VDC	7A	Pi	10	40	60	70	70	−55°C to +125°C
Screw Mounting	NFT501-851D1H203	50VDC	10A	Pi	20	44	65	75	75	−55°C to +1250C
	NFT501-851D2A353	100VDC			—	23	48	65	75	
	NFT501-851D2D903	200VDC			—	—	28	48	75	

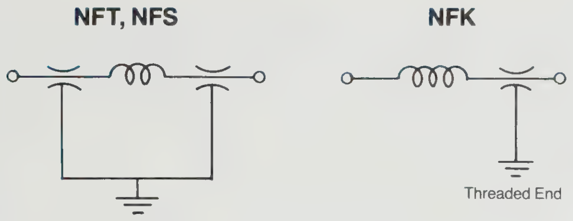
Part Number	Rated Voltage	Rated Feed-Thru Current	Circuit Construction	Minimum Insertion Loss (dB)					Operating Temp. Range	Cap. Value
				0.1MHz	1MHz	10MHz	50MHz	1GHz		
NFK1H-611	50VDC	0.3A	LT	25	64	80	60	60	−30°C to +85°C	0.3μF min.
NFK1H-612		0.5A		15	53	80	60	60		
NFK1H-613		1.0A		13	41	80	60	55		
NFK1H-614		2.0A		11	35	74	60	50		
NFK1H-615		3.0A		10	32	59	75	50		

EMI SUPPRESSION FILTERS
BROAD-BAND FEED-THRU TYPES
NFS401, NFT403, NFT501 & NFK1H Series

TEST CIRCUIT

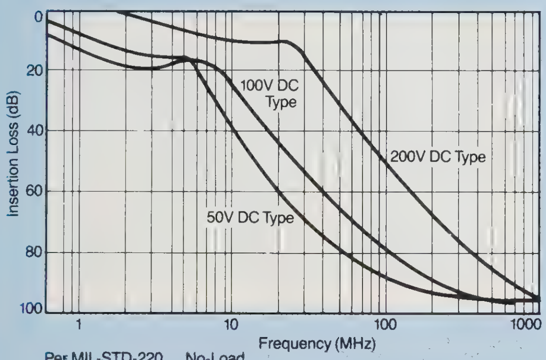


EQUIVALENT CIRCUIT



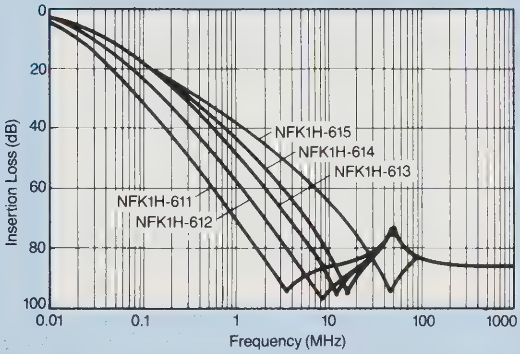
PERFORMANCE CHARACTERISTICS

Typical Insertion Loss NFT501 and NFS401



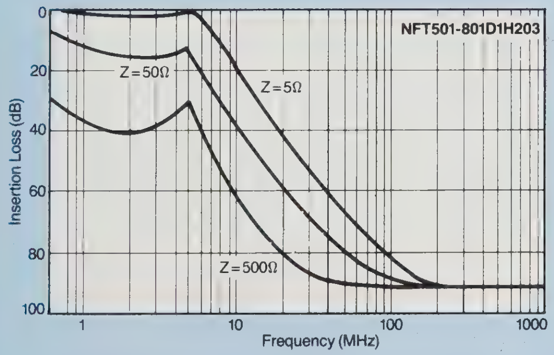
Per MIL-STD-220 No-Load

Typical Insertion Loss NFK1H Series



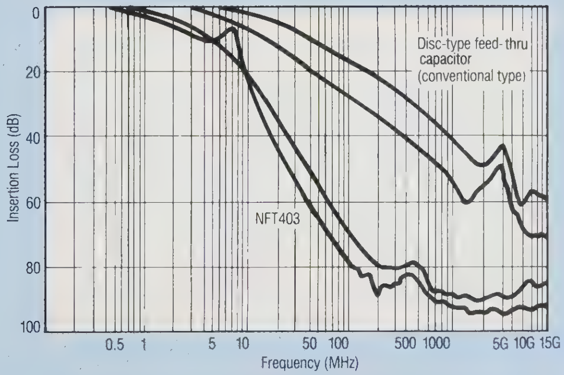
Per MIL-STD-220 No-Load

Insertion Loss as a Function of Input/Output Impedances



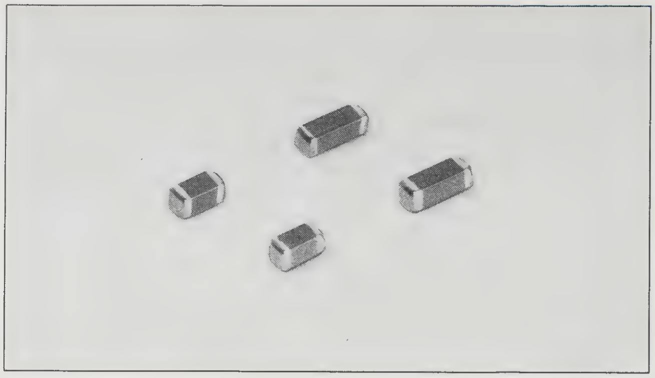
Per MIL-STD-220 No-Load

Insertion Loss Comparison



EMI SUPPRESSION FILTERS
SURFACE MOUNT FERRITE CHIPS

BLM21, BLM31, & BLM41 Series

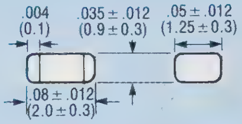


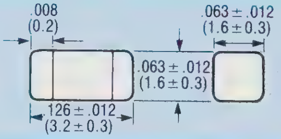
This new series of solid, ferrite chips for surface mount applications is designed to reduce the possibility of spurious oscillation in high frequency amplifying circuits and operate effectively from several MHz to several hundreds of MHz. Because of their small size, they are mountable on 2.5 mm c-c pitch thus saving considerable PCB space.

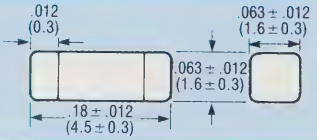
FEATURES

- Surface mountable on 2.5 mm pitch
- No stray capacitance to 1 GHz
- Wide temperature range: −55 °C to +125 °C
- Effective noise suppression to several hundreds of MHz
- Prevents oscillation in HF amplifiers
- Nickel barrier for solder heat resistance
- Suitable for both flow and reflow soldering applications

DIMENSIONS: in. (mm)







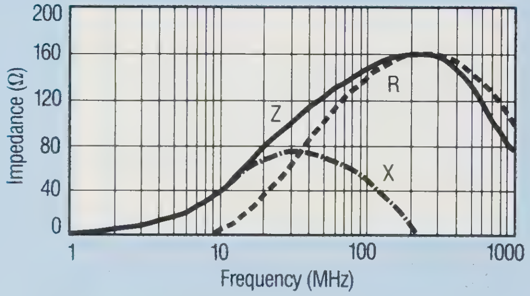
ELECTRICAL CHARACTERISTICS

Part Number*	Characteristics		
	Impedance (Ω) (Typ.) at 100MHz	Rated Current (mA)	DC Resistance (Ω max.)
BLM21A05	120	200	0.6
BLM31A02	70	200	0.5
BLM41A01	80	500	0.3
BLM41A04	150	200	0.7

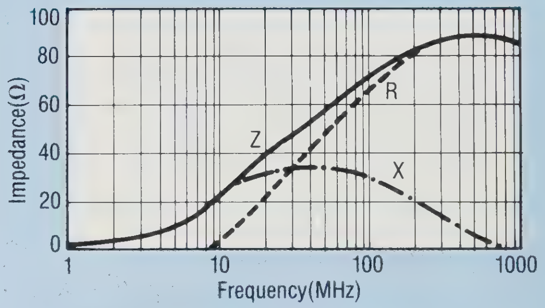
*Suffix = PB = Bulk, Suffix = PT = Tape & Reel

IMPEDANCE VS. FREQUENCY CHARACTERISTICS

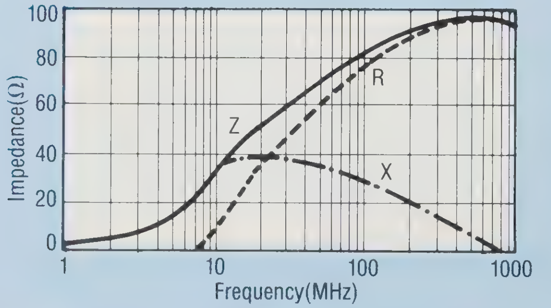
BLM21A05



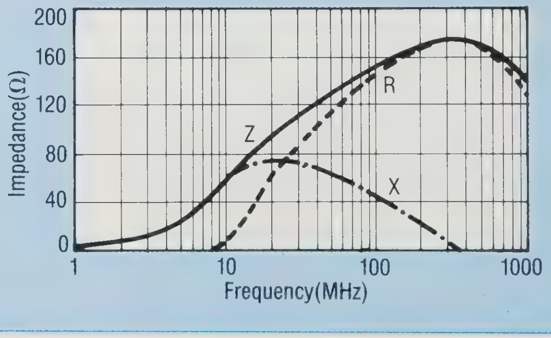
BLM31A02



BLM41A01

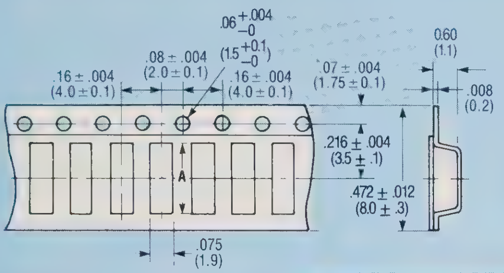


BLM41A04



TAPE & REEL DIMENSIONS: in. (mm)

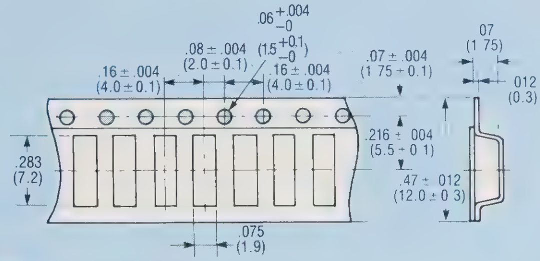
BLM21/31 (8mm width plastic tape)



Packaging unit:
BLM21···4000 pcs/reel 7.10 (180) D. reel
BLM31···2500 pcs/reel 7.10 (180) D. reel

	A	B	C
BLM21	.09 (2.3)	.06 (1.55)	.04 (1.05)
BLM31	.14 (3.5)	.075 (1.90)	.07 (1.75)

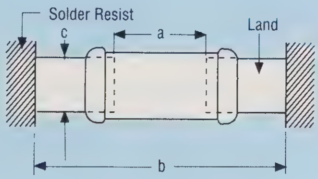
BLM41 (12mm width plastic tape)



Packaging unit···
2500 pcs/reel 7.10 (180) D. reel

MOUNTING INFORMATION

Land Dimensions: in. (mm)



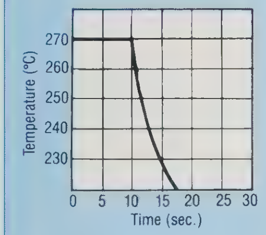
Type		BLM21	BLM31	BLM41
Length	L	.08 (2.0)	.126 (3.2)	.18 (4.5)
	W	.05 (1.25)	.063 (1.6)	.063 (1.6)
a		.05 (1.2)	.08 (2.0)	.12 (3.0)
b		.12 to .16 (3.0 to 4.0)	.165 to .205 (4.2 to 5.2)	.27 to .256 (5.5 to 6.5)
c		.04 (1.0)	.05 (1.2)	.05 (1.2)

SOLDERING CONDITIONS

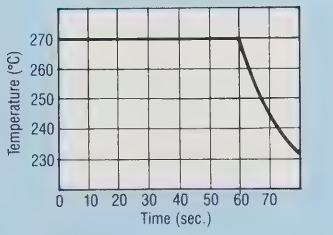
Soldering temperature and time

Solder within the range indicated by the slanted line. If soldering is repeated, please note that the allowed time is the accumulated time.

Flow Solder



Reflow Solder



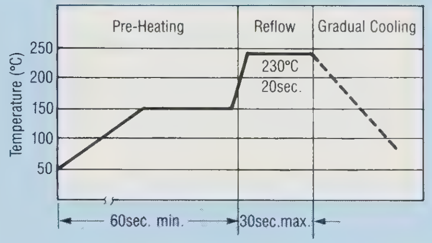
RECOMMENDED SOLDERING CONDITIONS

Recommended flux : For flux, use rosin-based flux, but not strong acidic flux (with chlorine content exceeding 0.20 wt. %)

Recommended Solder : 60/40 Solder

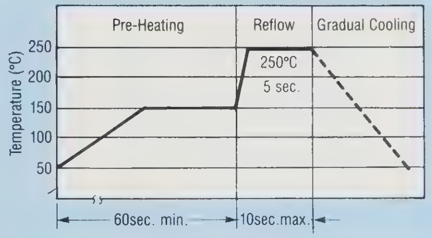
Reflow Solder

Pre-heat 150°C 1 minute min.
Reflow 230°C 20 sec. max.



Flow Solder

Pre-heat 150°C 1 minute min.
Flow 250°C 5 sec. max.



SOLDERING WITH IRON

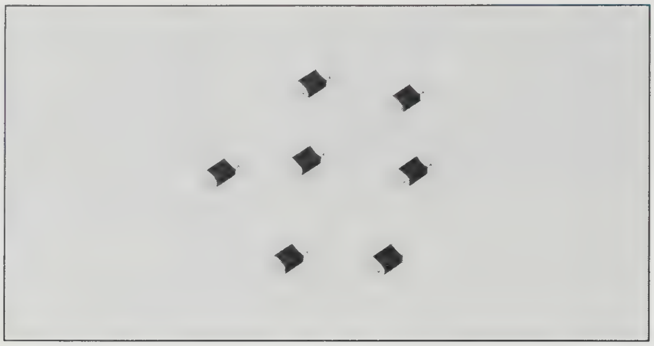
The following conditions must be strictly followed when using a soldering iron.

Soldering Iron : 30W max.
Tip Temperature : 280°C max.
Soldering Time : 10 seconds max.

CLEANING CONDITIONS

- Cleaning Liquid . . . . . . Freon, chlorosen and isopropyl alcohol.
- Immersion Cleaning . . . Within 5 minutes, 40°C max.
- Supersonic Cleaning . . Within 1 minute
  Power : 20W / ℓ max.
  Frequency : From several tens to several hundreds of KHz

BLM32 Series



Murata Erie's new BLM32A06 and BLM32A07 are the newest development in the BLM Series of ferrite inductive devices for surface mounting. These new devices can replace inductors in many applications where a series inductor is needed for filtering or RF signal isolation. They provide a very high impedance over the frequency range of from 1 MHz to 500 MHz.

APPLICATIONS

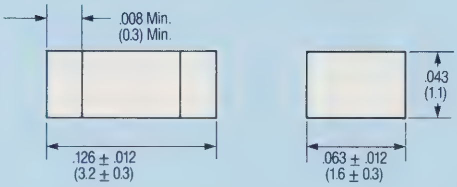
Computers and peripherals, Power supplies, Telephone equipment, Automotive electronics, Consumer electronics.

FEATURES

- **Small Size. Just .126 (3.2) × .063 (1.6) × .043 (1.1) allows .098 (2.5) c-c PCB mounting**
- **Wide Frequency Range...1 MHz to 500 MHz**
- **Operating Temperature −55 °C to + 125 °C**
- **Impedance of BLM32A06 is 6 ohms, BLM32A07 is 40 ohms at 1 MHz. Both feature an impedance over 600 ohms at 100 MHz.**
- **Nickel barrier electrode prevents leaching during soldering.**

DIMENSIONS: in. (mm)

BLM32

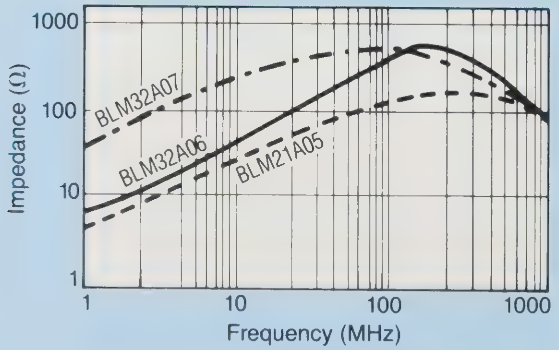


SPECIFICATIONS

Part Number*	Z @ 100 MHz	I (mA)
BLM32A06	600	200
BLM32A07	600	200

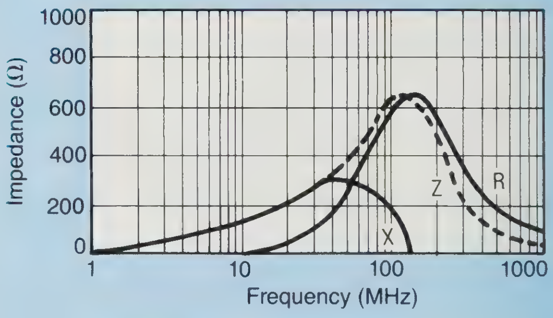
*Suffix=PB=Bulk Suffix=PT=Tape & Reel

COMPARISON OF BLM SERIES DEVICES

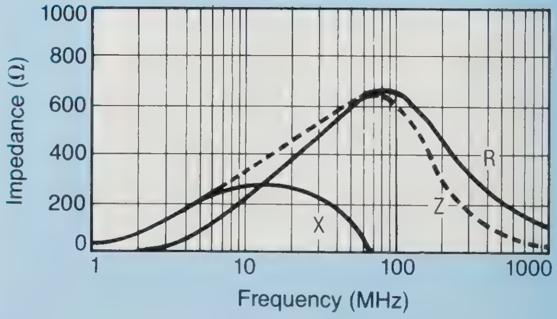


IMPEDANCE VS. FREQUENCY CHARACTERISTICS

BLM32A06



BLM32A07



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muRata ERIE®
MURATA ERIE NORTH AMERICA
1991, MURATA ERIE NORTH AMERICA, INC.

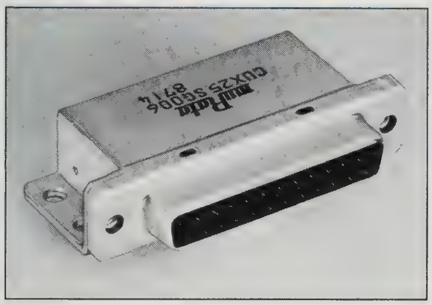
2200 Lake Park Drive
Smyrna, Georgia 30080
Tel: 404-433-7820
Telex: 26-1301
Panafax: 404-436-8738

muRata ERIE®

EMI/RFI 'D' CONNECTOR
FILTERS—CUX 25 SERIES

Bulletin No. 64-12

NEW PCB MOUNTED 'D' CONNECTOR EMI/RFI FILTERS–CUX25SG008

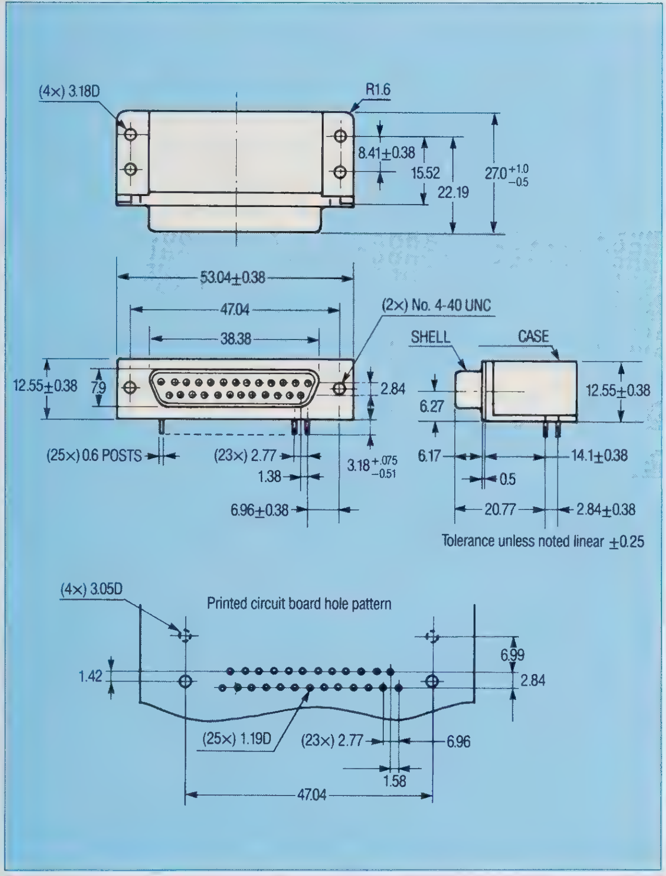


While this series of 'D' connectors was initially designed for Tempest applications, it provides excellent EMI filtering performance, to above 1 GHz, in any high speed digital or video system. The unique design of the individual line filters incorporated in this connector greatly reduces the high frequency harmonic content of the filtered square waveform without seriously degrading the functionality of the wave shape. This high frequency filtering greatly reduces ringing and reflections on the filtered line.

FEATURES

- **EMI filtering beyond 1 GHz**
- **Standard 25 pin 'D' configuration**
- **Unique wave-shaping circuitry**
- **Designed for Tempest I/O ports**
- **Reduces ringing and reflections**
- **Meets insertion loss requirements of MIL-STD-220A**

DIMENSIONS: in (mm)

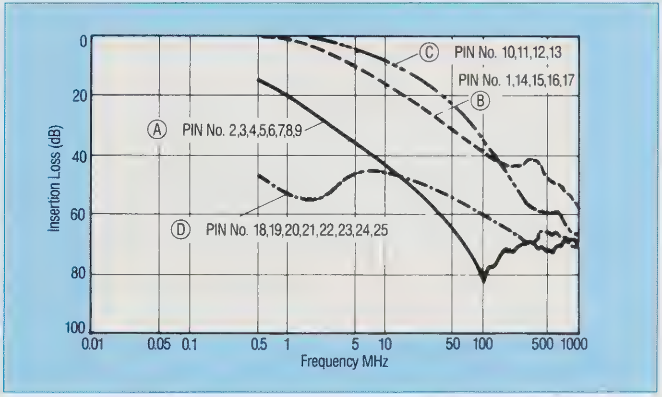


Tolerance unless noted linear ±0.25

SPECIFICATIONS

Storage Temperature		−25°C to +85°C
Operating Temperature		0°C to 70°C
Voltage Rating		50VDC
Current Rating (DC) (PIN No.)	1,10-13	1A
	14-25	5A
	2-9	0.05A
Dielectric Strength		125VDC
Series Resistance (PIN No.)	1,10-13	50mΩ Max.
	14-25	30mΩ Max.
	2-9	10Ω Max.
Insulation Resistance		100MΩ Min.
Insertion Loss		See below
Wave Shaping	2-9 pin	10% Max.

INSERTION LOSS–FREQUENCY (MINIMUM)

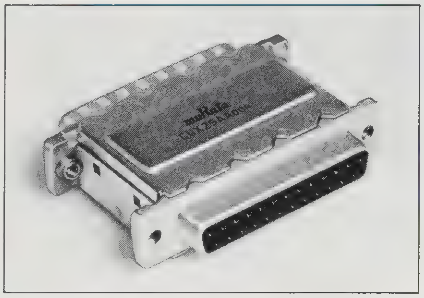


Measurement method is according to MIL-STD-220A.

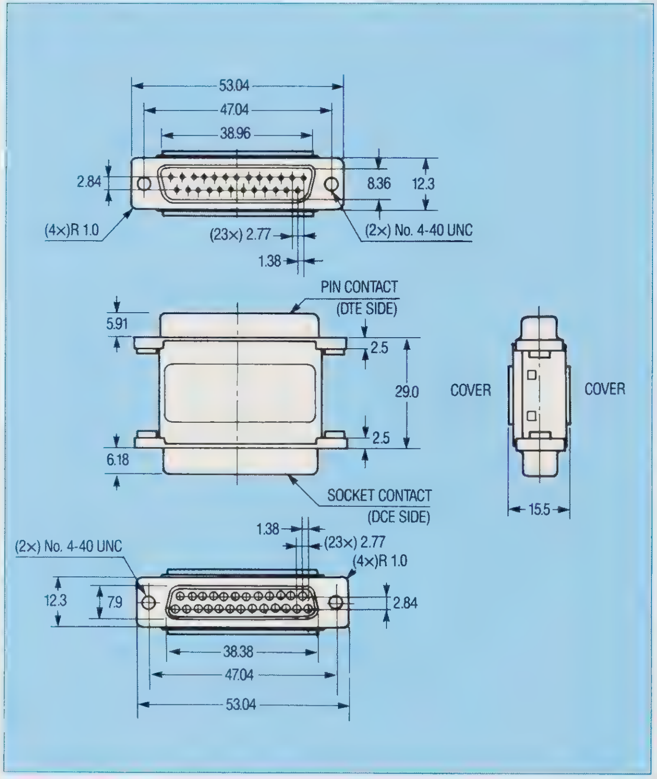
INSERTION LOSS (dB)

Contact Number	Insertion Loss (dB) at:						
	500kHz Min./Max.	1 MHz Min./Max.	5 MHz Min.	10 MHz Min.	50 MHz Min.	100 MHz Min.	1000 MHz Min.
2 thru 9	10/20	15 Min.	30	35	55	60	60
1 and 14 thru 17	0/10	0/10	5	10	25	30	45
10 thru 13	0/10	0/10	0/10	5	20	30	60
18 thru 25	20 Min.	25 Min.	35	50	55	55	60

NEW CUX25AA004 IN-LINE MALE/FEMALE 'D' CONNECTOR EMI/RFI FILTERS



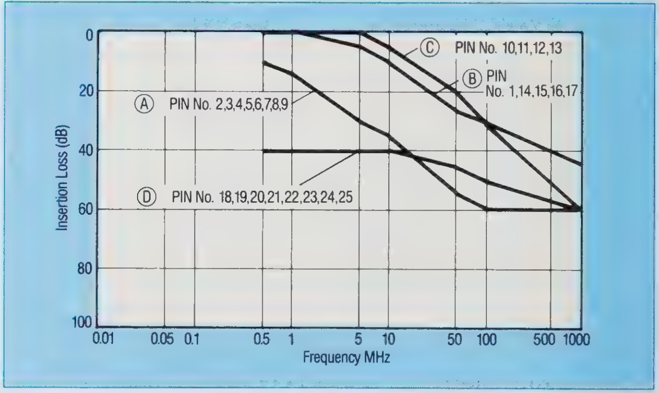
DIMENSIONS: in (mm)



SPECIFICATIONS

Parameter	Rating		Note
WV	50VDC		—
DWV	125VDC		—
IR	50MΩ Min.		50VDC/1 Min.
Oper. Temperature	0°C to 70°C		—
Storage Temperature	−25°C to +85°C		—
Capacitance (PIN No.)	2,3,4,5,6,7,8,9	3,000pF Min.	
	1,14,15,16,17	2,700pF Min.	
	10,11,12,13	1,200pF Min.	
	18,19,20,21,22,23,24,25	1,200,000pF Min.	

INSERTION LOSS–FREQUENCY (MINIMUM)



Measurement method is according to MIL-STD-220A.

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muRata ERiE®
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Telex: 06-62279
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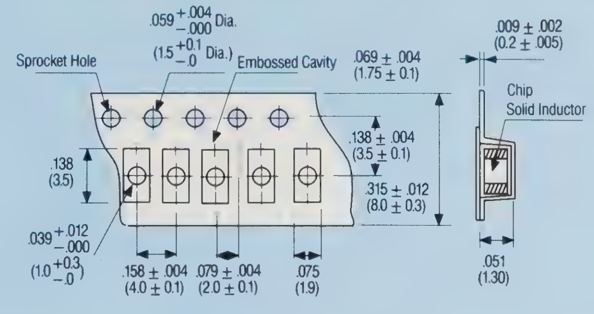
Corporate Address: 2200 Lake Park Drive, Smyrna, GA 30080 (404-436-1300)

· 1990, Murata Erie North America

MU-3656-1190

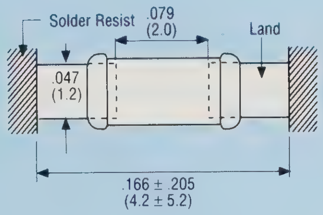
TAPE & REEL DIMENSIONS: in. (mm)



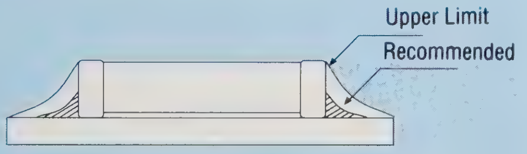
Packaging unit:
BLM32: 3,000 pcs/reel 7.10 (180) D. reel
10,000 pcs/reel 13.00 (330) D. reel

MOUNTING INFORMATION

Land Dimensions



SOLDER VOLUME

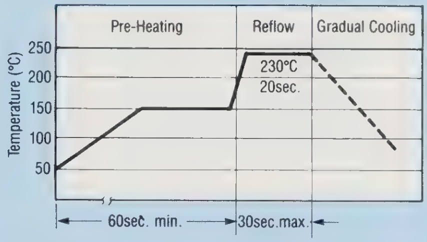


RECOMMENDED SOLDERING CONDITIONS

Recommended flux : For flux, use rosin-based flux, but not strong acidic flux (with chlorine content exceeding 0.20 wt. %)
Recommended Solder : 60/40 Solder

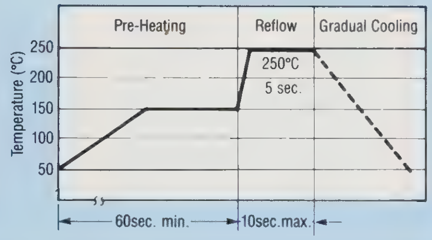
Reflow Solder

Pre-heat 150°C 1 minute min.
Reflow 230°C 20 sec. max.



Flow Solder

Pre-heat 150°C 1 minute min.
Flow 250°C 5 sec. max.



SOLDERING WITH IRON

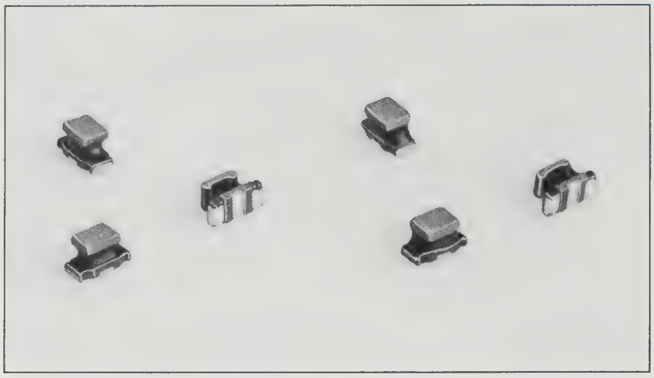
The following conditions must be strictly followed when using a soldering iron.

Soldering Iron : 30W max.
Tip Temperature : 280°C max.
Soldering Time : 10 seconds max.

CLEANING CONDITIONS

- Cleaning Liquid . . . . . . Freon, chlorosen and isopropyl alcohol.
- Immersion Cleaning . . . Within 5 minutes, 40°C max.
- Supersonic Cleaning . . Within 1 minute
  Power : 20W / ℓ max.
  Frequency : From several tens to several hundreds of KHz

NFM52 Series



The NFM52R Series chip is an efficient signal line noise suppression filter for high-speed digital signal lines where base-band frequencies and noise band frequencies are very close.

Murata Erie has combined its superior ceramic technologies with a unique circuit configuration to realize outstanding noise suppression effect in these applications. The NFM52R Series assures noise reduction to meet the specifications of CISPR, FCC, etc.

APPLICATIONS

Noise suppression for compact digital instruments, laptop personal computers, HDTV, EDTV, portable VTR, etc.

FEATURES

- **Steep attenuation characteristics make this filter most suitable as a suppressor for unwanted radiation in signal lines without attenuating base-band frequencies.**
- **Chip configuration is most suitable for noise suppression in compact digital instruments, etc.**
- **Four types are offered, classified by cut-off frequencies from 10 MHz to 100 MHz.**

PART NUMBERING

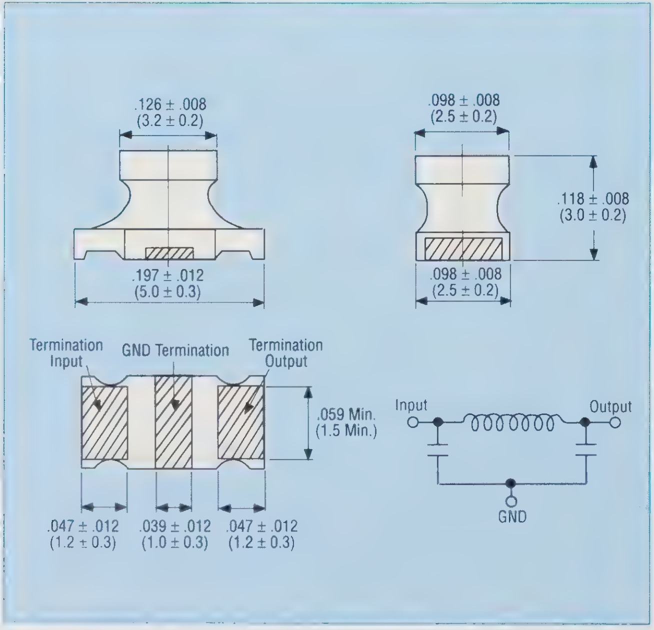
NFM52R	00P	106	T
Signal Line Chip	**Class Number**	**Cut-off Frequencies**	**Packaging Code** T: Tape & Reel

RATING CHARACTERISTICS

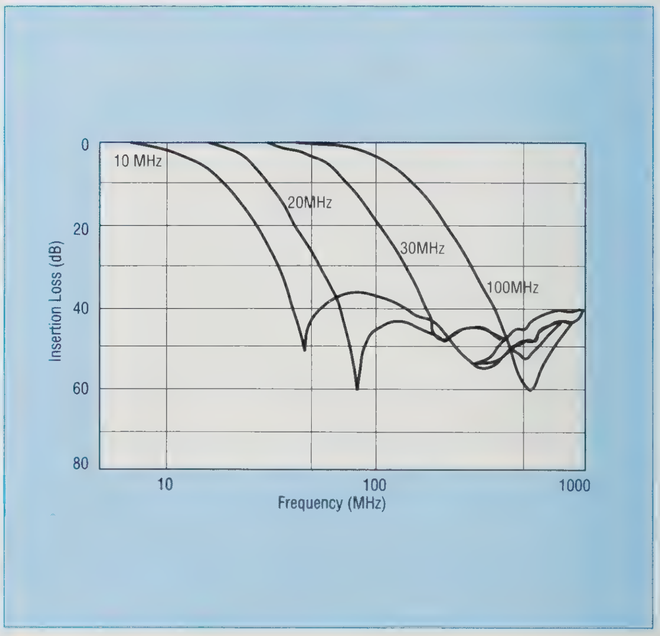
Part Number	Cut-off Frequency (MHz)	Insertion Loss (dB)						Rated Voltage (VDC)	Rated Current (mA)
		10 MHz	20 MHz	50 MHz	100 MHz	200 MHz	500 MHz		
NFM52R00P106	10	*	5	30	30	35	35	50	200
NFM52R10P206	20	—	*	20	30	35	35	50	200
NFM52R20P506	50	—	—	*	10	35	35	50	200
NFM52R30P107	100	—	—	—	*	10	35	50	200

*6dB Max.

DIMENSIONS: in. (mm)



INSERTION LOSS CHARACTERISTICS



EMI SUPPRESSION FILTER
SURFACE MOUNT CHIP FILTER

muRata ERIE

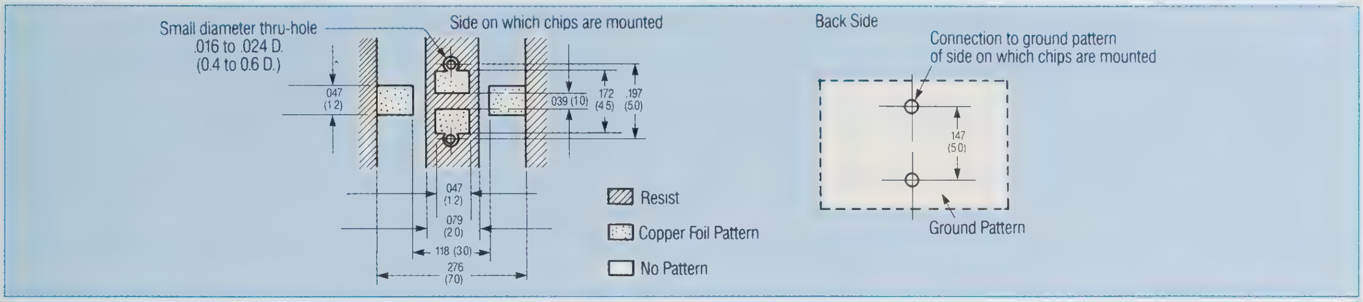
NFM52 Series

MOUNTING

Standard Land Dimensions

These units suppress unnecessary noise by grounding the high frequencies in designing the land dimensions. The ground pattern should be as large as possible.

Most effective noise suppression is possible when the chip filter is mounted on one side of a double-sided PCB, the other side is grounded and both sides are connected with small diameter thru-holes.



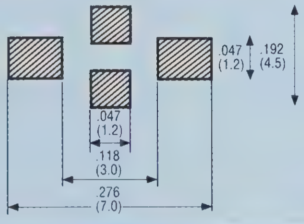
STANDARD SOLDERING CONDITIONS

Reflow Solder

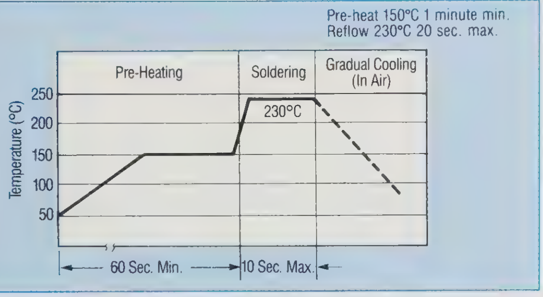
1. **Printing of solder cream:**
   - Coating thickness of solder cream should be 100μm to 200μm.
   - Use the solder cream coating pattern with reference to the following diagram.
   - For the resist and copper foil pattern, use the following standard land dimensions.
   - Use 60/40 solder containing silver for pattern printing.

DIMENSIONS: in. (mm)

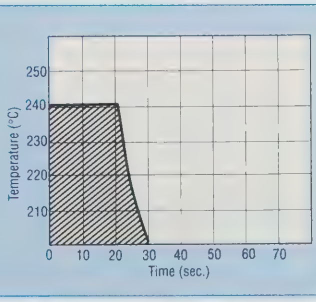
Standard solder cream coating pattern



2. **Standard Soldering Conditions**



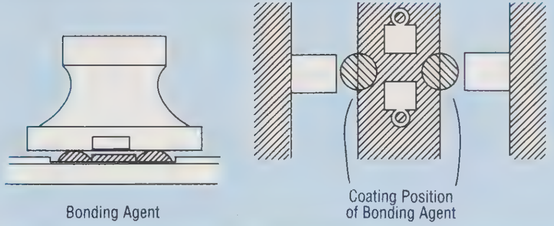
3. **Soldering Temperatures and Time**
   - Solder within the range of the slanted line.
   - If soldering is repeated, please note that the allowable time is the accumulated time.



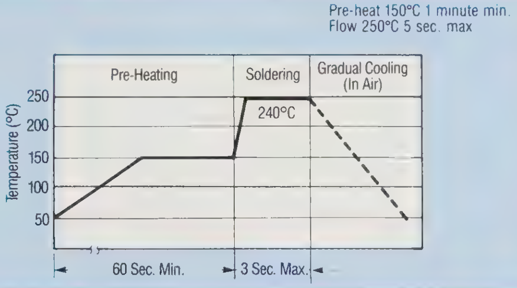
Flow Solder

1. **Coating of Bonding Agent**
   - Coating amount shall be about 0.2mg for each position to obtain enough bonding strength.
   - The coating position is as follows:

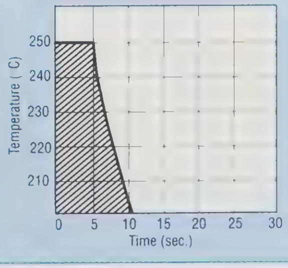
Standard Bonding Agent Pattern



2. **Standard Soldering Conditions**

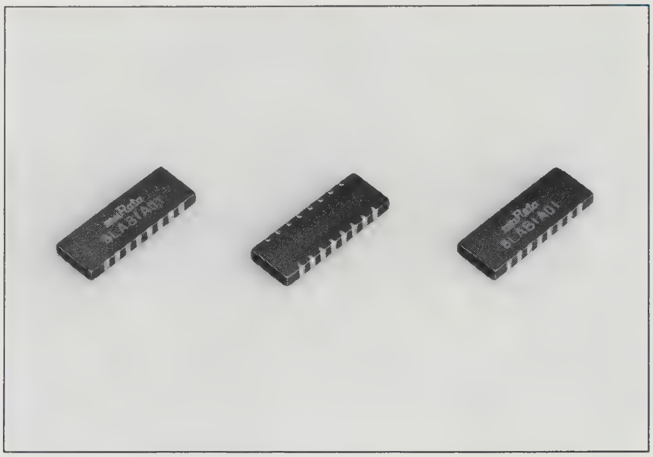


3. **Soldering Temperature and Time**
   - Solder within the range of slanted line.
   - If soldering is repeated, please note that the allowable time is the accumulated time.
   - Solder Type: 60/40
   - (60/40 solder containing Ag is recommended)
   - Flux: Rosin type flux is recommended. Do not use strong acid type (Cl content over 0.20 Wt. %).



EMI SUPPRESSION FILTERS
SURFACE MOUNT CHIP FERRITE BEAD ARRAY

BLA81 Series



The BLA81 Series is a chip ferrite bead array for surface mounting applications and excellent for high-density mounting with a land pitch of 1.27 mm.
It is well suited for noise suppression in digital circuit boards or the I/O cables of digital instruments.

APPLICATIONS

Computers, peripherals, digital TVs, digital VCRs, etc.

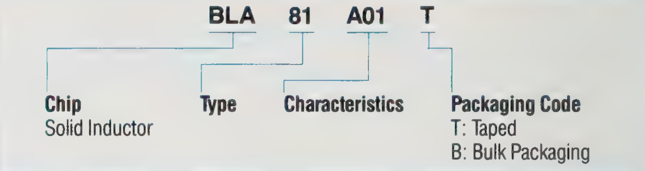
FEATURES

- **Excellent for high-density mounting. 8 circuits. Uniform pitch 1.27 mm.**
- **Unique electrode structure provides excellent noise suppression and excellent cross-talk characteristics.**
- **Nickel barrier structure of external electrodes provides excellent solder heat resistance.**
- **Operating Temperature Range: −55°C to +125°C.**

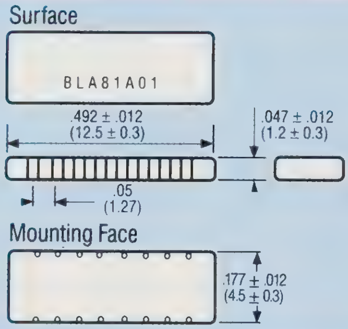
SPECIFICATIONS

Part Number	Impedance (Ω) at 100 MHz	Rated Current
BLA81A01	70 (Typ.)	300mA

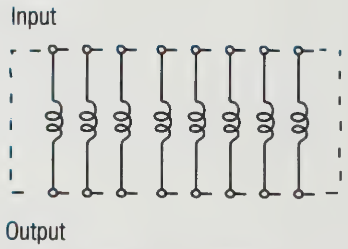
PART NUMBERING



DIMENSIONS: in. (mm)

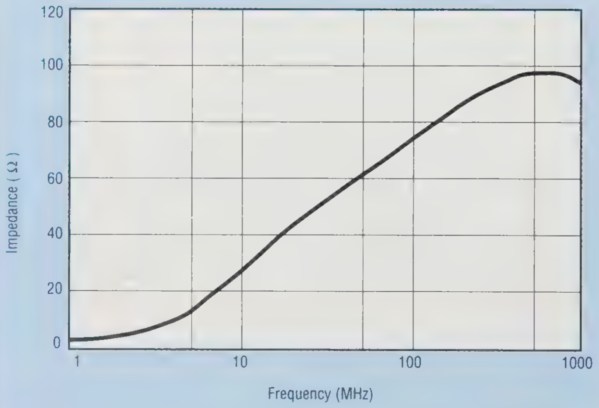


EQUIVALENT CIRCUIT



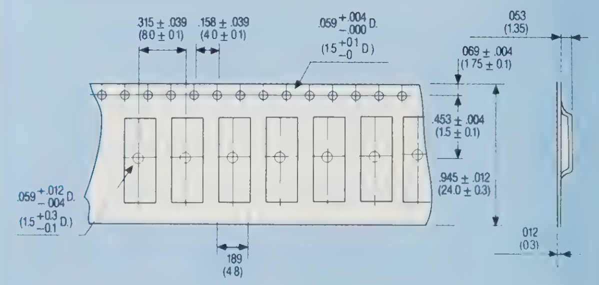
BLA81 Series has no directivity.

IMPEDANCE VS. FREQUENCY CHARACTERISTICS



PLASTIC TAPE DIMENSIONS: in. (mm)

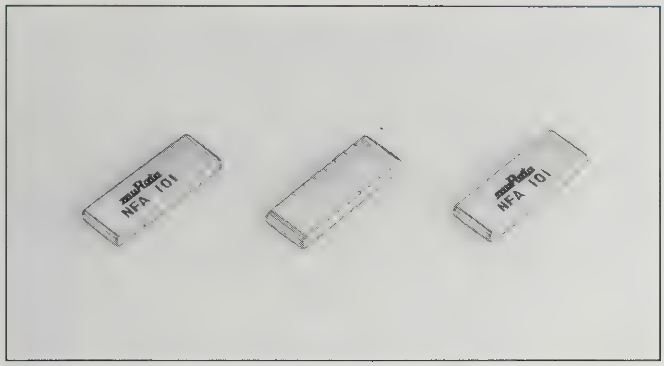
Plastic Tape (Based on EIAJ RC-1009B)



EMI SUPPRESSION FILTERS
SURFACE MOUNT FEED-THRU TYPE

muRata ERIE

NFA81 Series



The NFA81R Series is a chip feed-thru capacitor array filter for surface mounting application and is excellent for high density mounting with a land pitch of .063 (1.27).

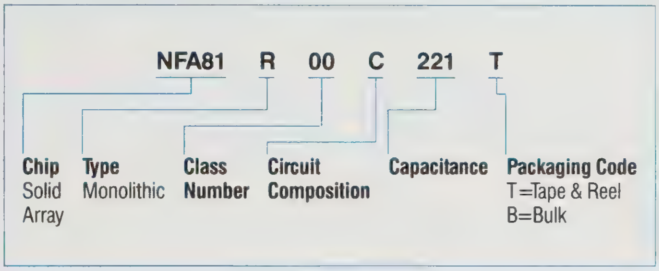
It has only two ground terminals for 8 circuits, therefore it makes it easy to design a ground pattern.

It is well suited for noise suppression in digital circuit boards or in I/O cables of digital instruments.

FEATURES

- **Excellent for high density mounting. 8 circuits. Uniform pitch .063 (1.27).**
- **Unique electrode structure provides excellent noise suppression and excellent cross-talk characteristics.**
- **Just two ground terminals for 8 circuits.**
- **Simple land design makes possible effective EMI suppression with narrow land pitch.**
- **Nickel barrier structure of external electrodes provides excellent solder heat resistance.**
- **Wide variety of capacitance values offered.**

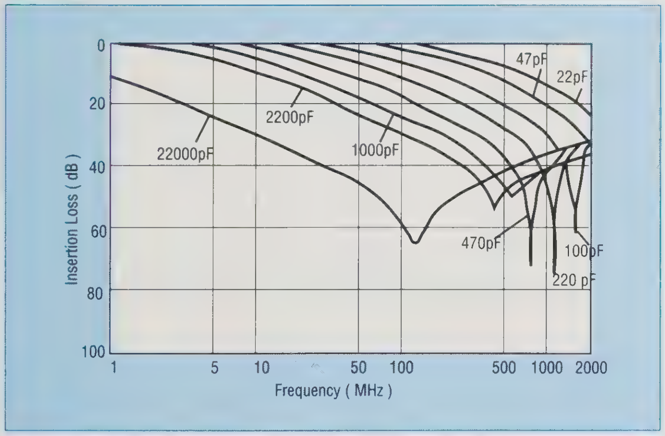
PART NUMBERING



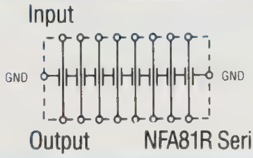
SPECIFICATIONS

Part Number	Capacitance (+50, −20%)	Rated Voltage (VDC)	Rated Current (mADC)	Insulation Resistance (MΩ)	Operating Temperature Range Range (°C)	Temp. Coefficient
NFA81R00C220	22pF	50	300	1000 Min.	−55 to +125	±15% −10°C to +60°C
NFA81R00C470	47pF					
NFA81R00C101	100pF					
NFA81R00C221	220pF					
NFA81R00C471	470pF		200			
NFA81R10C102	1000pF					
NFA81R10C222	2200pF					
NFA81R10C223	22000pF		300			

INSERTION LOSS CHARACTERISTICS

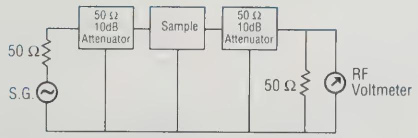


EQUIVALENT CIRCUIT

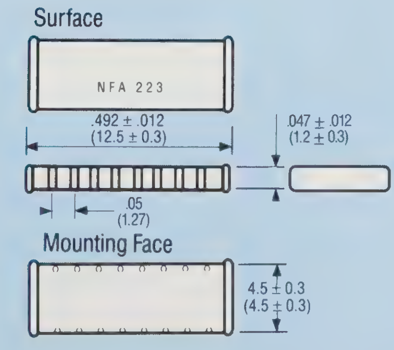


NFA81R Series has no directivity.

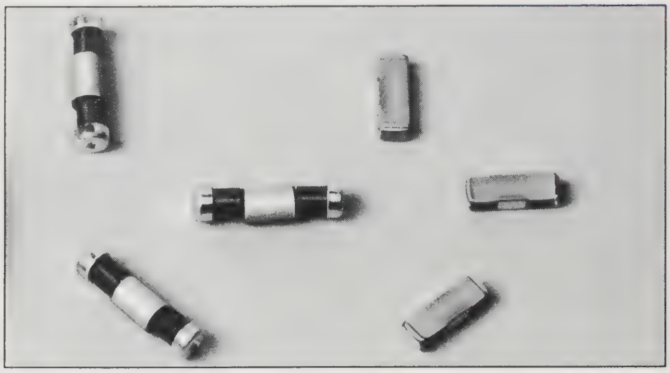
INSERTION LOSS MEASURING CIRCUIT



DIMENSIONS: in. (mm)



NFM41R, NFM61T & NFM61R Series

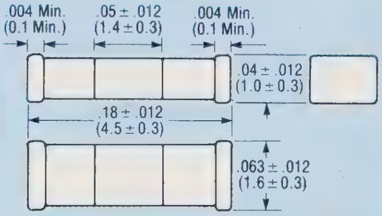
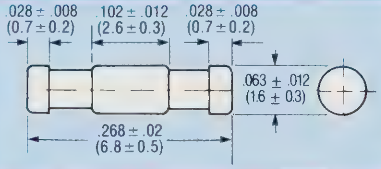
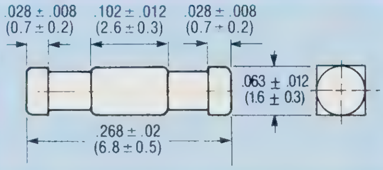


The new NFM Series of surface mount EMI filters are true feed-thru EMI/RFI filters; the NFM41R providing an SM feed-thru capacitor in various values and the NFM61T/R providing series ferrite bead inductors, in addition to a capacitor, on both the input and output sides of the filters. Applications for these new filters include filtering of DC power lines in all types of data processing and instrumentation equipment because of their high current capacity.

FEATURES

- Excellent insertion loss characteristics
- Wide frequency range of operation...to several hundred MHz
- Tape and reeled for auto-placement
- High current capability
- High solder heat resistance

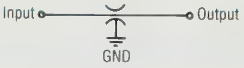
SPECIFICATIONS

DIMENSIONS: in. (mm)	Part Number*	Capacitance	Insulation Resistance	Rated Voltage	Rated Current	DC Resistance	Operating Temp. Range	Temp. Coefficient**
 .004 Min. (0.1 Min.) .05 ± .012 (1.4 ± 0.3) .004 Min. (0.1 Min.) .04 ± .012 (1.0 ± 0.3) .18 ± .012 (4.5 ± 0.3) .063 ± .012 (1.6 ± 0.3)	**NFM41R00C220**	22pF$\pm^{50}_{20}$%	10000MΩ min.	100V DC	300mA DC	0.3Ω max.	−55°C to +125°C	±15%
	NFM41R00C470	47pF$\pm^{50}_{20}$%						
	NFM41R00C101	100pF$\pm^{50}_{20}$%						
	NFM41R00C221	220pF$\pm^{50}_{20}$%						
	NFM41R00C471	470pF$\pm^{50}_{20}$%						
	NFM41R10C102	1000pF$\pm^{50}_{20}$%						
	NFM41R10C222	2200pF$\pm^{50}_{20}$%						
	NFM41R10C223	22000pF$\pm^{50}_{20}$%						
 .028 ± .008 (0.7 ± 0.2) .102 ± .012 (2.6 ± 0.3) .028 ± .008 (0.7 ± 0.2) .063 ± .012 (1.6 ± 0.3) .268 ± .02 (6.8 ± 0.5)	**NFM61T00T101**	100pF±20%	1000MΩ min.	50V DC	2A DC	—	−25°C to +85°C	+30/ −25%
	NFM61T10T431	430pF±20%		50V DC				±10%
	NFM61T20T472	4700pF$\pm^{80}_{20}$%		25V DC				±20%
 .028 ± .008 (0.7 ± 0.2) .102 ± .012 (2.6 ± 0.3) .028 ± .008 (0.7 + 0.2) .063 ± .012 (1.6 ± 0.3) .268 ± .02 (6.8 ± 0.5)	**NFM61R00T361**	360pF±20%	1000MΩ min.	50V DC	2A DC	—	−25°C to +85°C	±10%
	NFM61R10T102	1000pF$\pm^{80}_{20}$%						+20/ −55%
	NFM61R20T332	3300pF$\pm^{80}_{20}$%						+30/ −85%

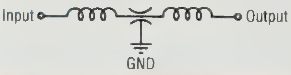
*Suffix=B=Bulk Suffix=T=Tape & Reel
**Over temperature range of −10°C to +60°C

EQUIVALENT CIRCUITS

NFM41R

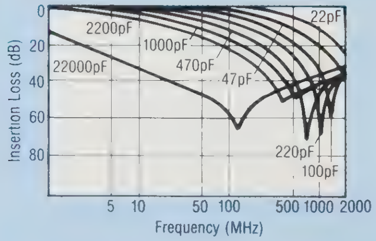


NFM61R, NFM61T

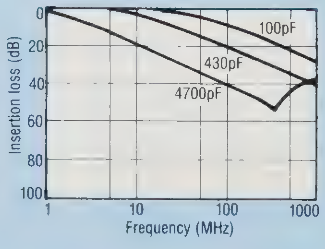


INSERTION LOSS/FREQUENCY CHARACTERISTICS

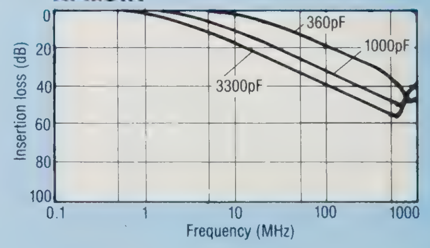
NFM41R



NFM61T



NFM61R

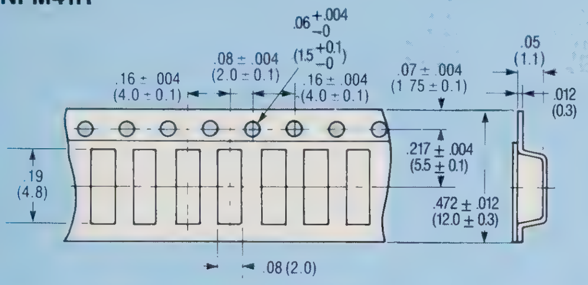


EMI SUPPRESSION FILTERS
SURFACE MOUNT
TAPE & REEL and MOUNTING INFORMATION

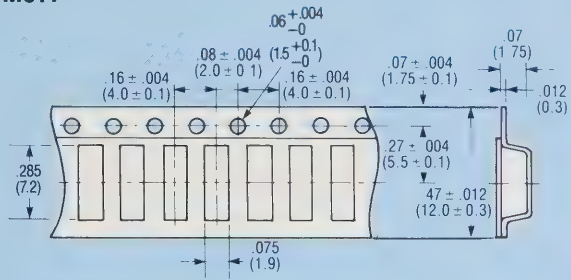
muRata ERIE

TAPE & REEL DIMENSIONS: in. (mm)

NFM41R



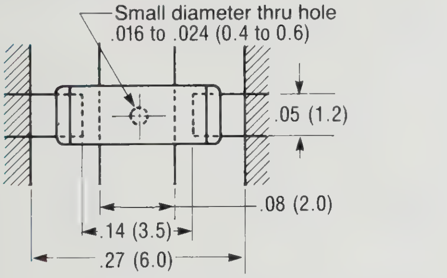
NFM61T



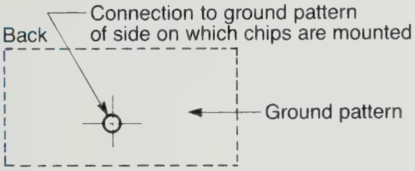
MOUNTING PADS DIMENSIONS: in. (mm)

NFM41R **Reflow Soldering**

Mounting Side



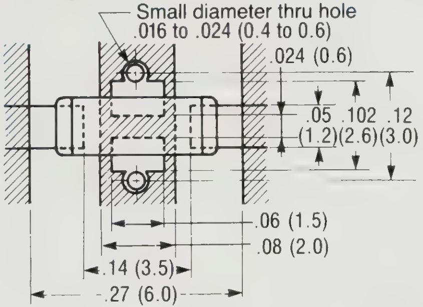
Back



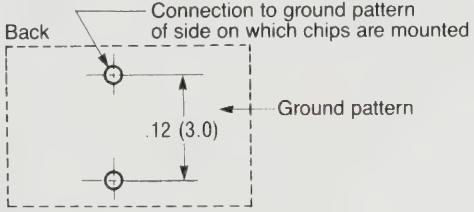
Connection to ground pattern
of side on which chips are mounted
Ground pattern

Flow Soldering

Mounting Side



Back



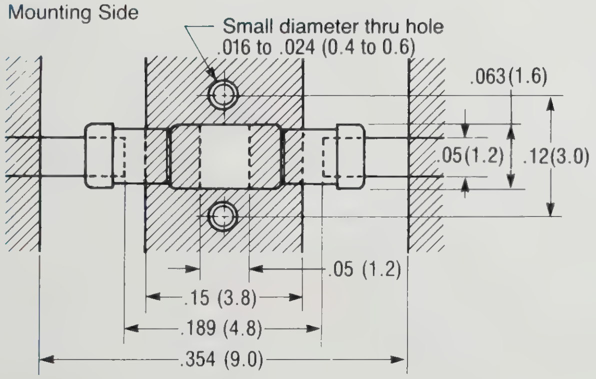
Connection to ground pattern
of side on which chips are mounted
.12 (3.0)
Ground pattern

NFM61T

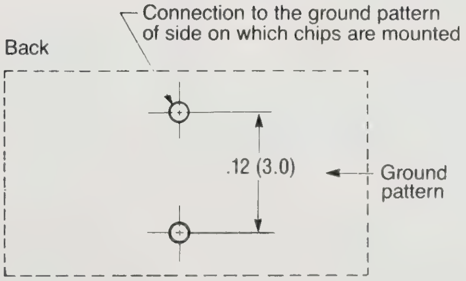
▨ Resist

☐ Copper foil pattern

Mounting Side



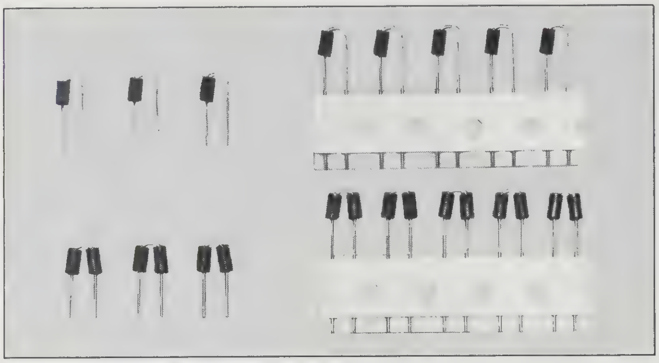
Back



Connection to the ground pattern
of side on which chips are mounted
.12 (3.0)
Ground
pattern

FERRITE BEAD INDUCTORS for NOISE SUPPRESSION and SPURIOUS OSCILLATION PREVENTION

BL01, BL02 & BL03 Series



Ferrite beads are used for noise suppression in car radios, digital control equipment and for the prevention of spurious oscillation in radio frequency amplifiers. These ferrite bead inductors are devices which can effectively be used on printed circuit boards where high component density is essential. Taped and reeled types are also available for automatic insertion. Radial leaded units can be classified into two types—one using a single ferrite bead and the other using two ferrite beads.

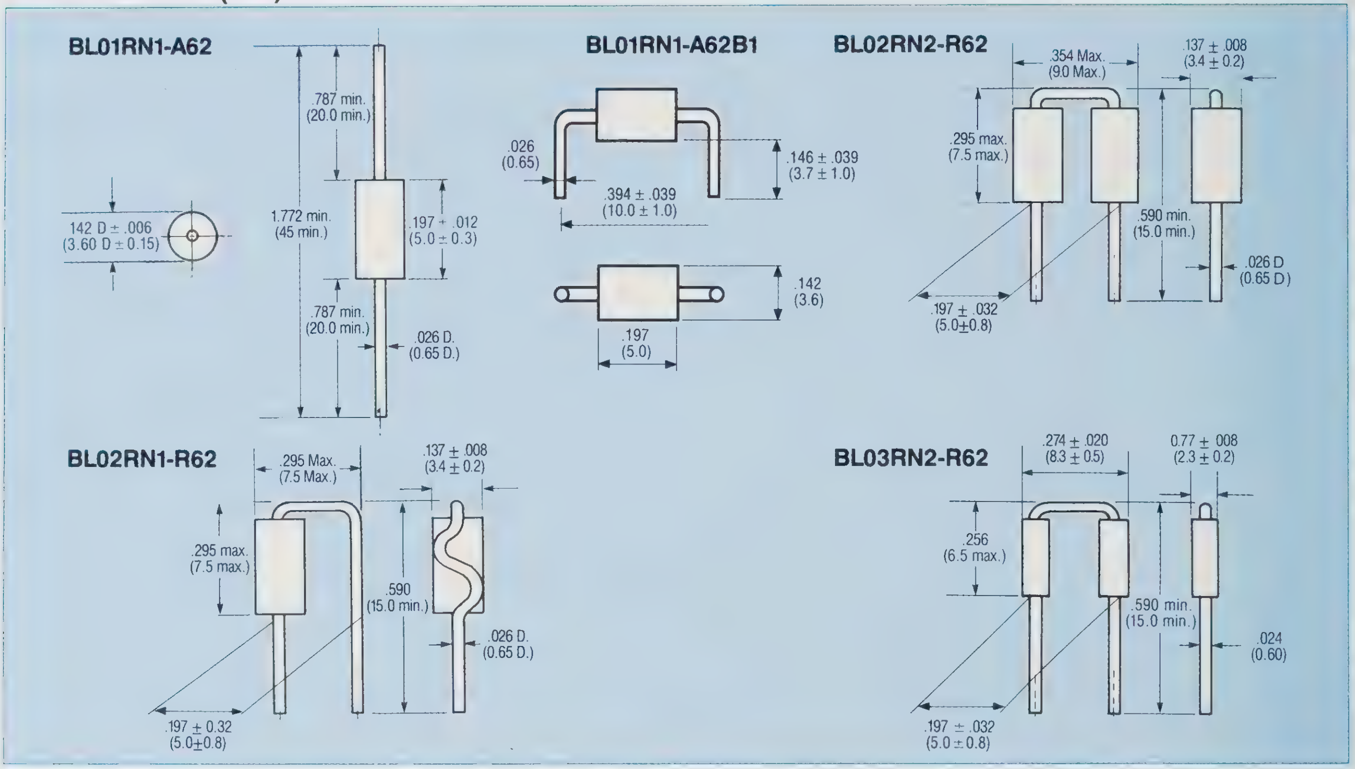
APPLICATIONS

Micro computer, switching regulators, digital control equipment, car radios, car stereos, etc.

FEATURES

- **High component density potential.**
- **Double bead BL02RN2 types offered for more effective noise suppression.**
- **Taped and reeled radial and axial types for automatic insertion can be provided as well as ammo packaging.**
- **Axial lead version BL01RN1-A62 available.**

DIMENSIONS: in. (mm)



ELECTRICAL CHARACTERISTICS

Item		Characteristics
Permeability	(μi)	550
Saturation Magnetic	(Bs)	3100 (gauss)
Residual Magnetic Flux Density	(Brs)	600 (gauss)
Coercive Force	(Hc)	0.3 (Oe)
Curie Point	(Tc)	130 (°C)
Temp. Coefficient	($\alpha\mu r$)	20×10^{-6}
Relative Loss Factor	(DF/μi)	13×10^{-6}
		0.5 (MHz)
Resistivity	(ρ)	10^7 (Ω-cm)
Rated Current	BL01 and BL02 (*A*)	7 A max.
	BL03	6 A max.

CONFIGURATIONS

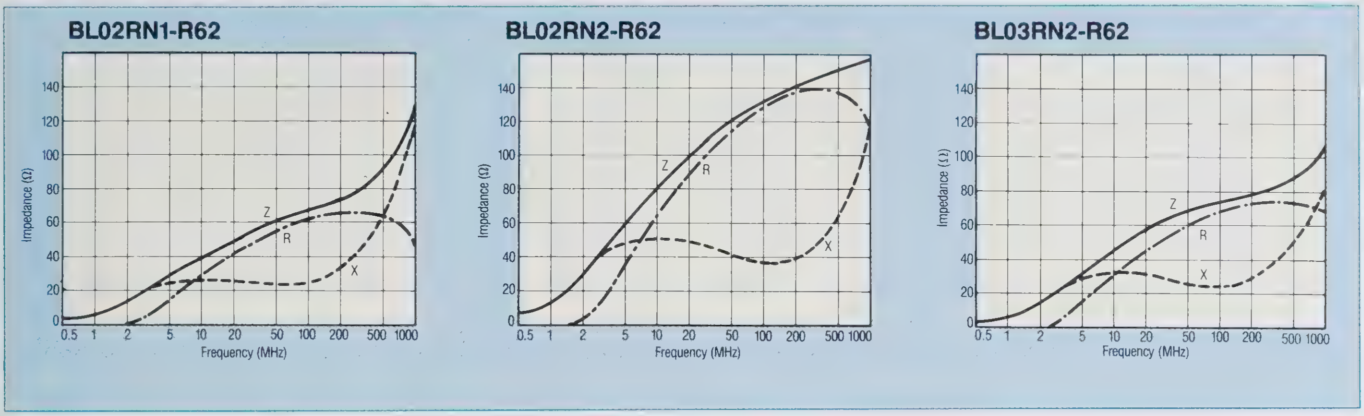
Part Number	Form
BL01RN1-A62	Axial, Single bead
BL01RN1-A62B1	Axial, Single bead, Bent
BL01RN1-A62T5	Axial, Single bead, Taped
BL01RN1-A63T6	Axial, Single bead, Taped
BL02RN1-R62	Radial, Single bead
BL02RN2-R62	Radial, Double bead
BL02RN1-R62T2	Radial, Single bead, Taped
BL02RN2-R62T2	Radial, Double bead, Taped
BL03RN2-R62	Radial, Double bead
BL03RN2-R62T2	Radial, Double bead, Taped

Operating Temperature: −25°C to +85°C

FERRITE BEAD INDUCTORS for NOISE SUPPRESSION and SPURIOUS OSCILLATION PREVENTION

BL01, BL02 & BL03 Series

FREQUENCY CHARACTERISTICS OF FERRITE BEADS


BL02RN1-R62

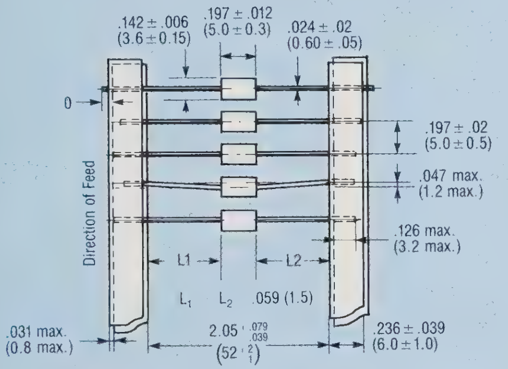
BL02RN2-R62

BL03RN2-R62

TAPE & REEL* DIMENSIONS: in. (mm)

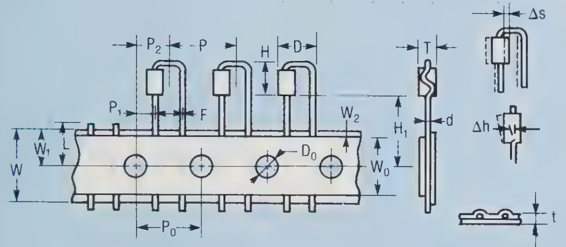
AXIAL LEAD TYPE BL01 SERIES

BL01RN1-A62T5/A63T6

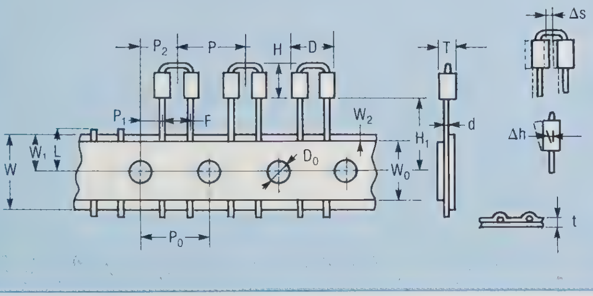


RADIAL LEAD TYPE BL02/BL03 SERIES

BL02RN1-R62T2



BL02RN2-R62T2/BL03RN2-R62T2



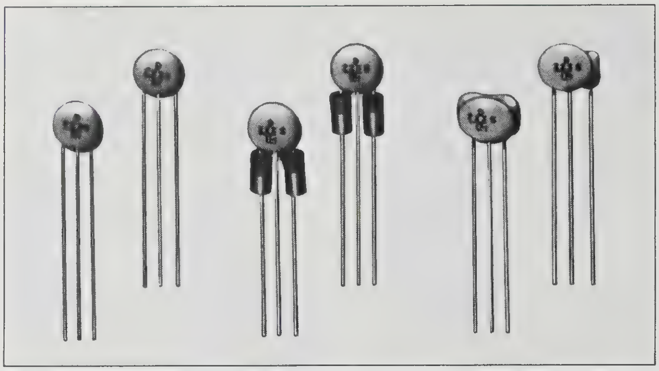
Item	Code	Dimensions: in. (mm)
Pitch of Component	P	.500 (12.7)
Pitch of Sprocket Hole	P_0	.500 ± .001 (12.7 ± 0.2)
Lead Spacing	F	$.197^{+.031}_{-.008}$ $(5.0^{+0.8}_{-0.2})$
Length from Hole Center to Lead	P_1	.152 ± 0.28 (3.85 ± 0.7)
Length from Hole Center to Component Center	P_2	.250 ± .051 (6.35 ± 1.3)
Width of Body	D	BL02RN1 .295 max. (7.5 max.) BL02RN2 .354 max. (9.0 max.) BL03RN2 .327 max. (8.3 max.)
Height of Bead	H	BL02 .295 max. (7.5 max.) BL03 .256 max. (6.5 max.)
Deviation along Tape, Left or Right	ΔS	±.04 (±1.0)
Carrier Tape Width	W	.709 ± .02 (18.0 ± 0.5)
Position of Sprocket Hole	W_1	$.354^{+0}_{-.02}$ $(9.0^{+0}_{-0.5})$
Lead Length	H_1	.650 ± .02 (16.5 ± 0.5)
Protrusion Length		+.02 to +.039 (+0.5 to +1.0)
Diameter of Sprocket Hole	D_0	.157 ± .004 (4.0 ± 0.1)
Lead Diameter	d	.024 (0.60)
Total Tape Thickness	t	.028 ± .008 (0.7 ± 0.2)
Deviation Across Tape	Δh	±.039 (±1.0)
Portion To Cut In Case Of Defect	L	$.433^{+0}_{-.039}$ $(11.0^{+0}_{-1.0})$
Hold Down Tape Position	W_0	.472 ± .02 (12.0 ± 0.5)
Hold Down Tape Width	W_2	.059 ± .059 (1.5 ± 1.5)
Body Thickness	T	BL02 .134 ± .008 (3.4 ± 0.2) BL03 .091 max. (2.3 max.)

*Reel Dim.: 12.6 (320) Dia. x 1.70 (43) T.

*Other lead length of .787 ± .02 (20.0 ± 0.5) also available

EMI SUPPRESSION FILTERS
DISC-TYPE for PCB MOUNTING

DS310, DST310 & DSS310 Series



Disc-type EMIFIL® DS310, DST310, and DSS310 are T-type EMI suppression filters. The disc-type EMIFIL increases the self-resonant frequency of the capacitor by attaching two lead wires to one of the electrodes of the capacitor and increases the insertion loss by adding inductance to the lead in the DST and DSS types only. Frequencies to be suppressed can be selected by choosing the capacitance. They are also recommended for use as by-pass capacitors.

EIA TEMPERATURE CHARACTERISTICS CODE

Min. Operating Temp.		Max. Operating Temp.		Cap. Tolerance	
X	−55°C	2	+45°C	C	±2.2%
Y	−30°C	4	+65°C	D	±3.3%
Z	−10°C	5	+85°C	E	±4.7%
		6	+105°C	F	±7.5%
		7	+125°C	P	±10%
				R	±15%
				S	±22%
				T	+22%, −33%
				U	+22%, −56%
				V	+22%, −82%

NOTE: 1. MMC uses "EIA-J" for the Japanese domestic market and EIA for the foreign market.

EIA-J TEMPERATURE CHARACTERISTICS

	Operating Temp. Range	Standard Temp.	Cap. Tolerance
B	−25°C to +85°C	20°C	±10%
C	CHIP −55°C to +125°C DIP −25°C to +85°C	20°C	±20%
D	−25°C to +85°C	20°C	+20, −30%
E	−25°C to +85°C	20°C	+20, −55%
F	−25°C to +85°C	20°C	+30, −80%

SPECIFICATIONS

Part Number	Insertion Loss	Capacitance	Capacitor		Ferrite Core	Dimensions
			W.V.	T.C. −25°C to +85°C		
FOR GENERAL APPLICATIONS						
DS310-55Y5S271M	Fig. 4	270pF ± 20%	100V	±22% $^{+20}_{-30}$%	None	Fig. 1
DS310-55Y5S222M	Fig. 5	2200pF ± 20%	100V			
DS310-55Y5S223S	Fig. 6	22000pF$^{+50}_{-20}$%	50V			
DS310-55D104M16V	Fig. 11	100,000pF ± 20%	16V			
DST310-55Y5S271M	Fig. 4	270pF ± 20%	100V	±22%	External	Fig. 2
DST310-55YS222M	Fig. 5	2200pF ± 20%	100V			
DST310-55Y5S223S	Fig. 6	22000pF$^{+50}_{-20}$%	50V			
DSS310-5Y5S220M	Fig. 8	22pF ± 20%	100V	±22%	Internal	Fig. 3
DSS310-55Y5S470M	Fig. 9	47pF ± 20%	100V			
DSS310-55Y5S101M	Fig. 10	100pF ± 20%	100V			
DSS310-55Y5S271M	Fig. 4	270pF ± 20%	100V			
DSS310-55Y5S222M	Fig. 5	2200pF ± 20%	100V			
DSS310-55Y5S223S	Fig. 6	22000pF $^{+50}_{-20}$%	50V			
FOR AUDIO CIRCUITS (LOW DISTORTION TYPE)						
DSS310-55BL222M	Fig. 7	2200pF ± 20%	100V	±10%	Internally Contained	Fig. 3
DS310-55DL223S		22000pF $^{+50}_{-20}$%	50V	+20%, −30%		

Part Number	Insertion Loss	Capacitance	T.C.		Ferrite Core	Dimensions*
			−25°C to +85°C	−40°C to +105°C		
FOR HIGH TEMPERATURE APPLICATIONS						
DS310H-55B220M250	Fig. 8	22pF ± 20%	±10%	±20%	None	Fig. 1
DST310H-55B220M250					External	Fig. 2
DSS310H-55B220M250					Internal	Fig. 3
DS310H-55B101M250	Fig. 10	100pF ± 20%			None	Fig. 1
DST310H-55B101M250					External	Fig. 2
DSS310H-55B101M250					Internal	Fig. 3
DS310H-55B271M250	Fig. 4	270pF ± 20%			None	Fig. 1
DST310H-55B271M250					External	Fig. 2
DSS310H-55B271M250					Internal	Fig. 3
DS310H-55B222M250	Fig. 5	2200pF ± 20%		±30%	None	Fig. 1
DST310H-55B222M250					External	Fig. 2
DSS310H-55B222M250					Internal	Fig. 3

*NOTE: DS☐310 Series Footprint for Bulk and Tape & Reel are different. Consult factory for details.

All units are rated at 7A max. and 250 VDC.

EMI SUPPRESSION FILTERS
DISC-TYPE for PCB MOUNTING
DS310, DST310, DSS310 & DSS310H Series

DIMENSIONS: in. (mm) (See Note)

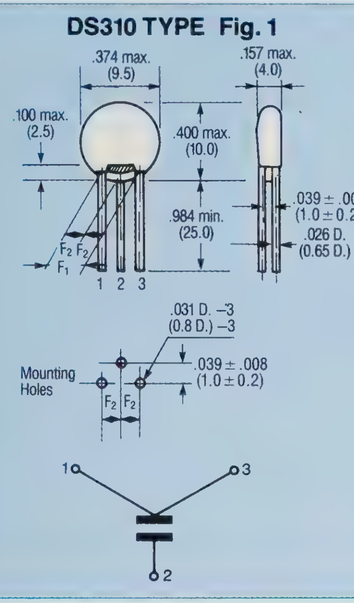


Fig. 1

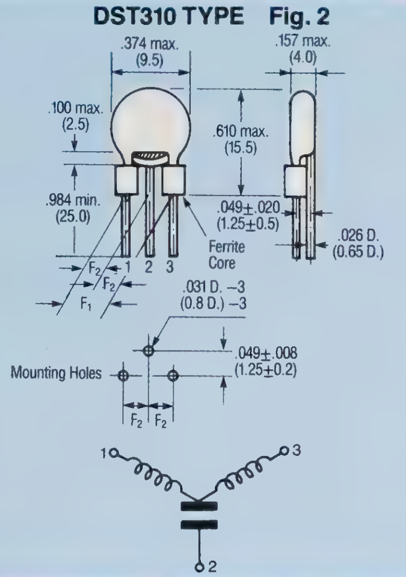


Fig. 2

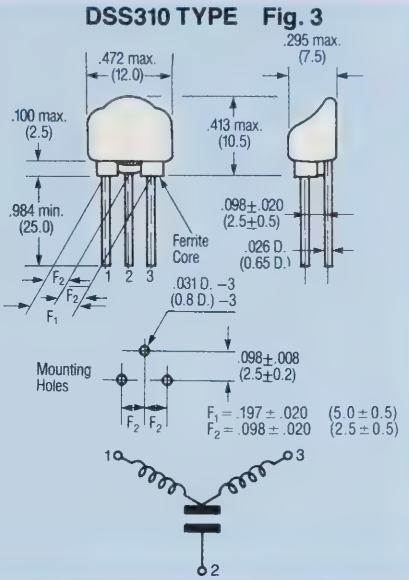


Fig. 3

NOTE: DS□310 Series Footprint for Bulk and Tape & Reel are different. Consult factory for details.

INSERTION LOSS CHARACTERISTICS

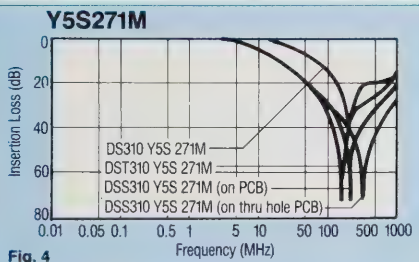

Y5S271M

Fig. 4

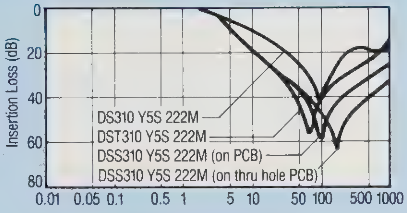

Y5S222M

Fig. 5

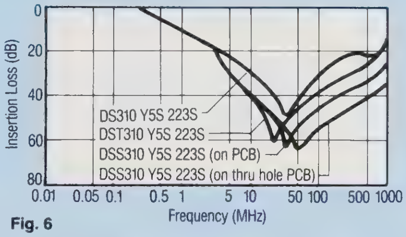

Y5S223S

Fig. 6

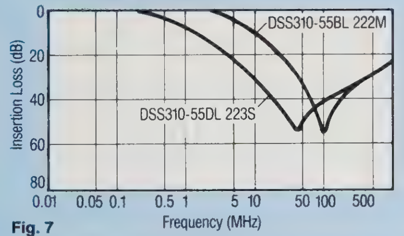

BL222M/DL223S

Fig. 7

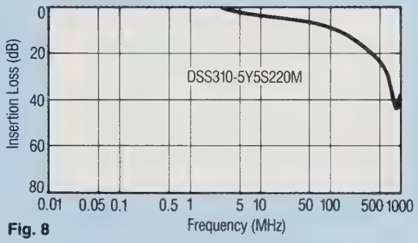

Y5S220M

Fig. 8

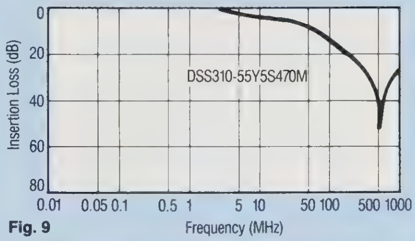

Y5S470M

Fig. 9

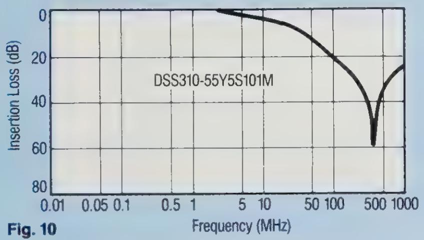

Y5S101M

Fig. 10

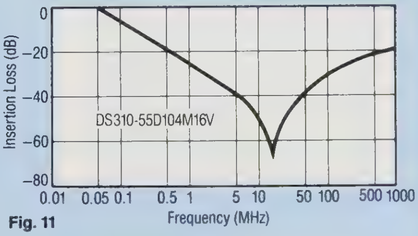

D104M

Fig. 11

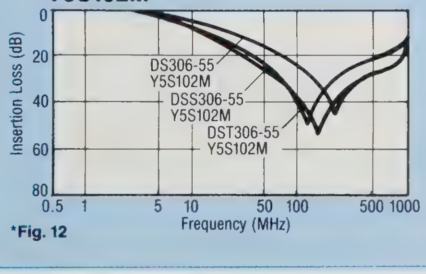

Y5S102M

***Fig. 12**

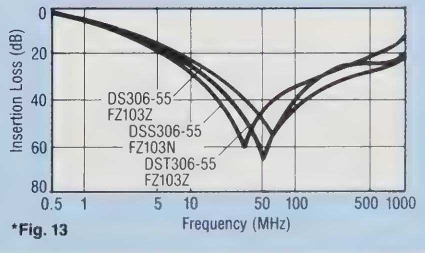
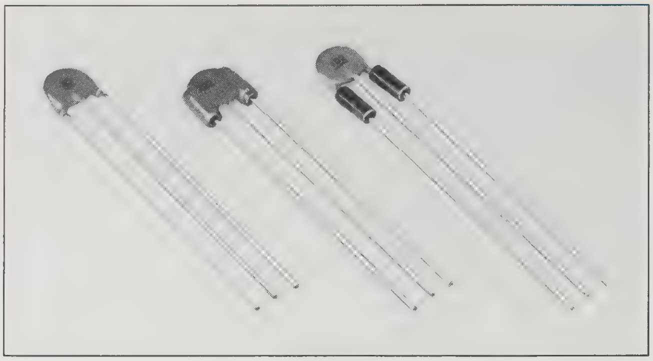

FZ103Z/FZ103N

***Fig. 13**

EMI SUPPRESSION FILTER
COMPACT DISC-TYPE for PCB MOUNTING

DS306, DST306 & DSS306 Series



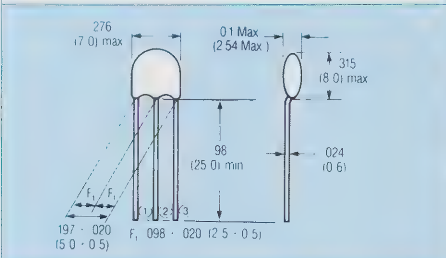
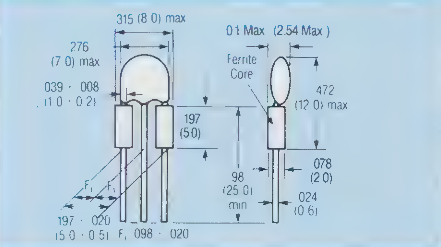
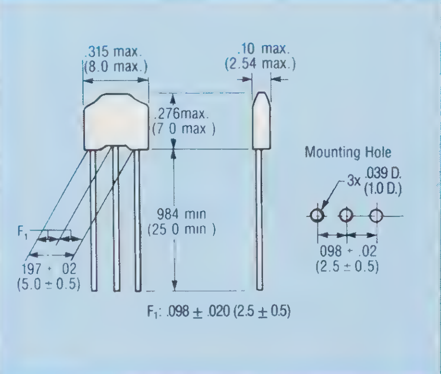
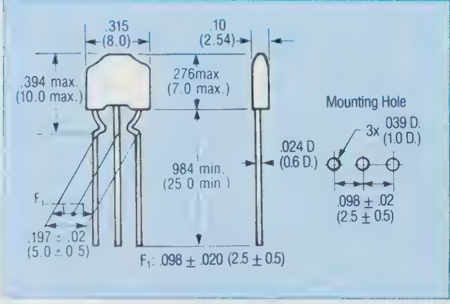
APPLICATIONS

- Computer and peripherals interfaces
- Compact digital equipment
- Compact PPC, electronic typewriters, other electronic equipment and appliances
- Meets FCC, VDE and CISPR regulations for all electronic equipment and appliances with high density packaging

SPECIFICATIONS

	Rating
Rated Voltage	50VDC
Rated Current	6 A
Test Voltage	125VDC
Operating Temperature Range	−25°C to +85°C

SPECIFICATIONS

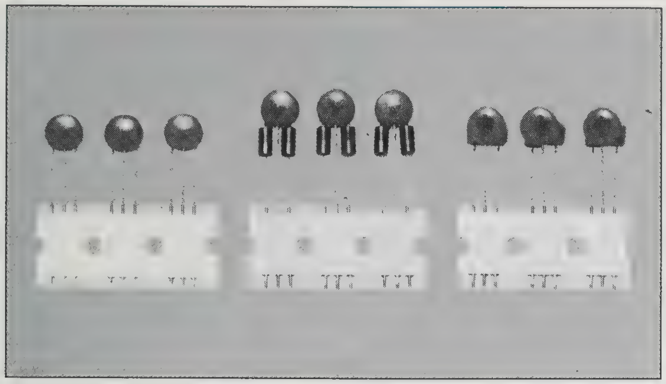
DIMENSIONS: in. (mm)	Part Number	Capacitor			Ferrite Beads
		Capacitance	Rated Volt.	Temp. Char.	
 276 (7 0) max 01 Max (2 54 Max) 315 (8 0) max 98 (25 0) min 024 (0 6) F1 1 2 3 197 · 020 (5 0 · 0 5) F1 098 · 020 (2 5 · 0 5)	DS306-55Y5S470M	47pF ± 20%	50VDC	±22%	None
	DS306-55Y5S101M	100pF ± 20%		±22%	
	DS306-55Y5S271M	270pF ± 20%		±22%	
	DS306-55Y5S102M	1000pF ± 20%		±22%	
	DS306-55Y5S222M	2200pF ± 20%		±22%	
	DS306-55FZ103Z	10000pF + 80%, −20%		+30%, −85%	
 315 (8 0) max 276 (7 0) max 01 Max (2.54 Max) Ferrite Core 039 · 008 (1 0 · 0 2) 472 (12 0) max 197 (5 0) 98 (25 0) min 078 (2 0) 024 (0 6) F1 197 · 020 (5 0 · 0 5) F1 098 · 020	DST306-55Y5S470M	47pF ± 20%	50VDC	±22%	Outside
	DST306-55Y5S101M	100pF ± 20%		±22%	
	DST306-55Y5S271M	270pF ± 20%		±22%	
	DST306-55Y5S102M	1000pF ± 20%		±22%	
	DST306-55Y5S222M	2200pF ± 20%		±22%	
	DST306-55FZ103Z	10000pF +80%, −20%		+30%, −85%	
 .315 max. (8.0 max.) .10 max. (2.54 max.) .276max. (7 0 max) Mounting Hole 3x .039 D. (1.0 D.) 984 min (25 0 min) F1 197 · 02 (5.0 ± 0.5) 098 · .02 (2.5 ± 0.5) F1: .098 ± .020 (2.5 ± 0.5)	DSS306-55Y5S220M	22pF ± 20%	100VDC	±22%	Inside
	DSS306-55Y5S470M	47pF ± 20%		±22%	
	DSS306-55Y5S101M	100pF ± 20%		±22%	
	DSS306-55Y5S271M	270pF ± 20%		±22%	
	DSS306-55Y5S471M	470pF ± 20%		±22%	
	DSS306-55Y5S102M	1000pF ± 20%		±22%	
	DSS306-55Y5U222Z	2200pF + 80%, −20%		+22%, −56%	
	DSS306-55FZ103N	10000pF ± 30%		+30%, −85%	
	DSS306-55FZ223Z1G	22000pF +80%, −20%	16VDC	+30%, −80%	
 .315 (8.0) .10 (2.54) .394 max. (10.0 max.) .276max (7.0 max.) Mounting Hole 3x .039 D. (1.0 D.) .024 D (0.6 D.) 984 min. (25 0 min) F1 .197 ± .02 (5.0 ± 0 5) .098 ± .02 (2.5 ± 0.5) F1: .098 ± .020 (2.5 ± 0.5)	DSS306-351Y5S470M	47pF ± 20%	100VDC	±22%	Inside
	DSS306-351Y5S101M	100pF ± 20%		±22%	
	DSS306-351Y5S271M	270pF ± 20%		±22%	
	DSS306-351Y5S471M	470pF ± 20%		±22%	
	DSS306-351Y5S102M	1000pF ± 20%		±22%	
	DSS306-351Y5U222Z	2200pF + 80%, −20%		+22%, −56%	
	DSS306-351FZ103N	10000pF ± 30%		+30%, −85%	

NOTE: "55" in part number denotes Bulk packaging. For Tape & Reel, replace with appropriate number from chart on page 21. For typical insertion loss characteristics, see DS310, DST310 and DSS310 characteristics on page 25.

EMI SUPPRESSION FILTERS
TAPE & REEL

muRata ERIE

DS306, DSS306-4, DST306 & DSS310 Series



PART NUMBERING, DS306 & DSS310 SERIES

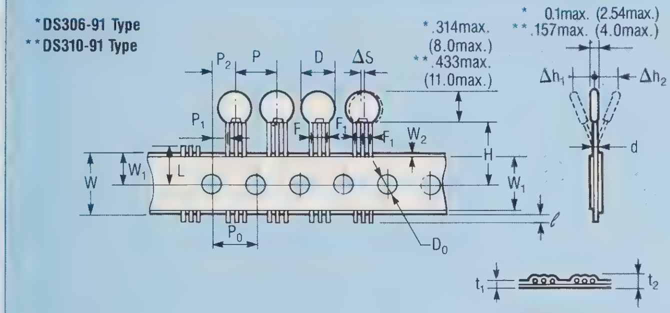
DST	306	—	55	Y5S	271	M
T=Ferrite Bead Outside S=Ferrite Bead Inside	Series		55=Bulk Pkg. *=Tape & Reel (See Chart)	Temp. Char.	Cap. Value	Tolerance

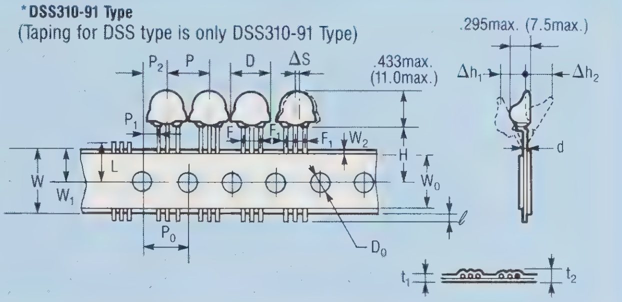
TAPE & REEL CODES

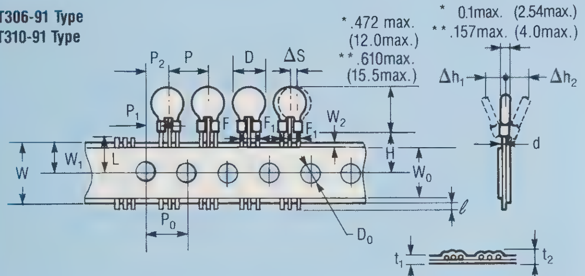
Code		H
Straight Leads	Crimped Leads	Tape & Reel
91		.787 (20.0)
92	421	.650 (16.5)
93	431	.728 (18.5)

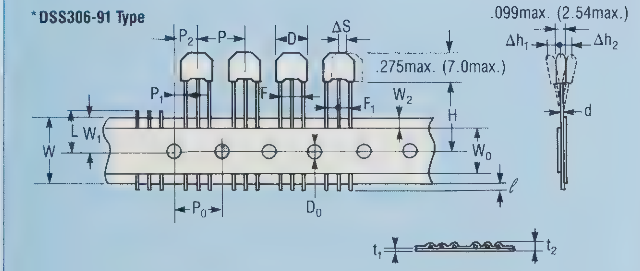
*Three types of H dimensions (lead length) are available for various types of insertion machines.

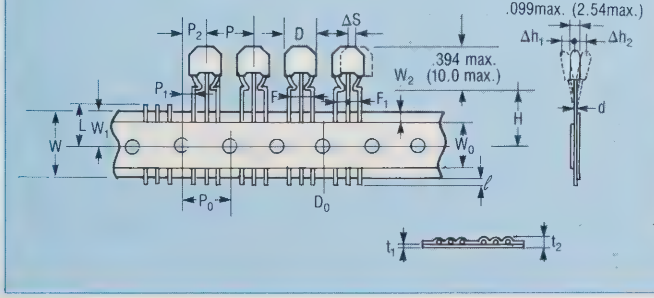
TAPE & REEL DIMENSIONS: in. (mm)


*DS306-91 Type
**DS310-91 Type


*DSS310-91 Type
(Taping for DSS type is only DSS310-91 Type)


*DST306-91 Type
**DST310-91 Type


*DSS306-91 Type

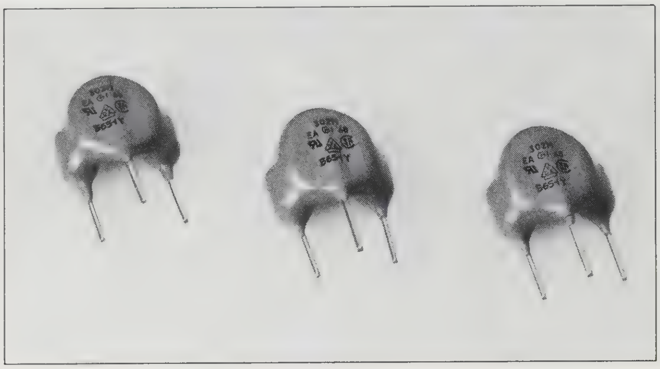


Item	Code	Dimensions: in. (mm)	Remarks
Taping Pitch	P	.500 (12.7)	Product Inclination Δ S Determines Crossing
Guide Pitch	P_0	.500 ± .008 (12.7 ± 0.2)	
Hole Center to Lead	P_1	.152 ± .028 (3.85 ± 0.7)	
Hole Center to Component Center	P_2	.250 ± .051 (6.35 ± 1.3)	Shift in Tape in Direction of Feed
Diameter of Body	D	.276 [.374] (7.0 [9.5])	DS max.
		.275 [.374] (7.0 [9.5])	DST max.
		.315 [.473] (8.0 [12])	DSS max.
Deviation of Body Center	Δ S	0 ± .039 (0 ± 1.0)	
Width of Base Tape	W	.709 ± .020 (18.0 ± 0.5)	
Feed Hole Position to Capacitor Lead	W_1	$.355^{+0}_{-.020}$ $(9.0^{+0}_{-0.5})$	Tape Widthwise Shift
Protrusion Length	ℓ	+.020 to −.039 (+0.5 to −1.0)	
Diameter of Feed Hole	D_0	.158 ± .004 (4.0 ± 0.1)	
Diameter of Lead	d	.024 (0.6)	
Total Thickness of Tape	t_1	.028 ± .008 (0.7 ± 0.2)	Includes Thickness of Bonding Tape
	t_2	.059 (1.5) max.	
Deviation Across Tape	Δh_1	.039 (1.0) max.	
	Δh_2	.039 (1.0) max.	
Length of Snipped Lead	L	$.433^{+0}_{-.039}$ $(11.0^{+0}_{-1.0})$	
Width of Hold Position	W_0	.473 ± .020 (12.0 ± 0.5)	
Hold-down Tape Position	W_2	.059 ± .059 (1.5 ± 1.5)	
Lead Spacing	F	$.197^{+.032}_{-.008}$ $(5.0^{+0.8}_{-0.2})$	
	F_1	$.099^{+.016}_{-.008}$ $(2.5^{+0.4}_{-0.2})$	

[ ]……DS□310 Series

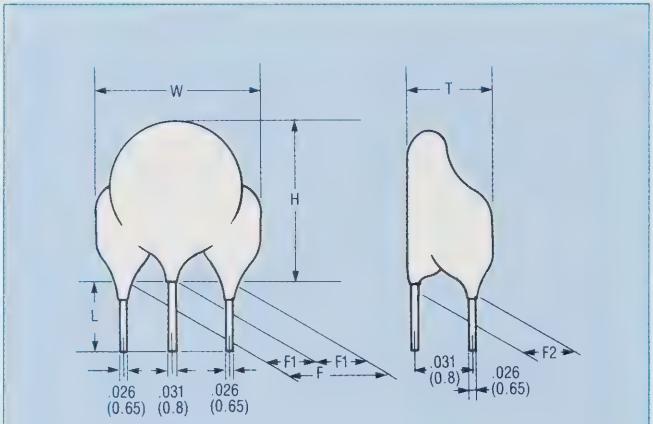
EMI SUPPRESSOR FILTERS
SAFETY STANDARD RECOGNIZED EMIFIL® for AC POWER SUPPLIES

DSR Series



The EA type is a 3-terminal capacitor (EMIFIL®) for AC power supplies. Its combination of 3-terminal structure and ferrite beads results in better attenuation (over 20dB in the radio frequency band) compared to conventional 2-terminal capacitors. They are also UL, CSA, VDE, SEMKO and BSI recognized.

DIMENSIONS: in. (mm)

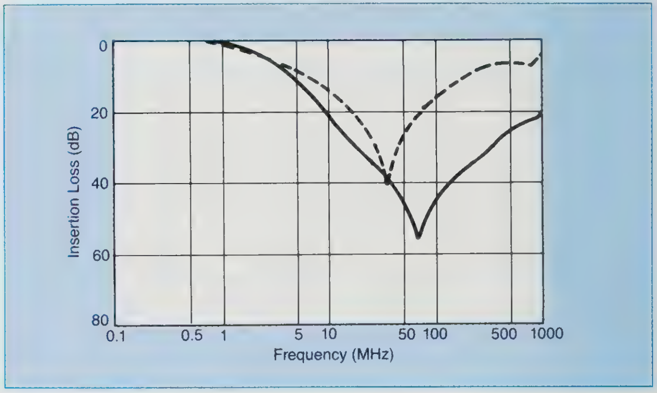


F = .394 ± .039
(10.0 ± 1.0)
F1, F2 = .197 ± .039
(5.0 ± 1.0)

Part Number	W	H	T	L
DSR1100	.63 max. (16.0 max.)	.591 max. (15.0 max.)	.433 max. (11.0 max.)	.236 (6.0)
DSR1120	.63 max. (16.0 max.)	.669 max. (17.0 max.)	.433 max. (11.0 max.)	
DSR1150	.709 max. (18.0 max.)	.866 max. (22.0 max.)	.433 max. (11.0 max.)	

INSERTION LOSS CHARACTERISTICS

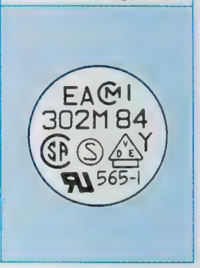
Capacitance: 3000pF. The dotted line shows conventional capacitor.



RATINGS

Item	Ratings
Rated Current	7 A (AC)
Insulation Resistance	10000 MΩ Max.
Operating Temperature Range	−25°C to +85°C

MARKING

Item		Marking
VDE Approved Mark	△	
UL Recognized Mark	ЯU	
CSA Monogram	SP	
SEMKO Approved Mark	Ⓢ	
Type Designation	EA	
Nominal Capacitance		
Capacitance Tolerance		
Manufacturer's Name	MI	

Standard Number	Recognition Number
VDE565-1	41804
UL 1414	E37921
CSA C22.2 No. 1	LR58157
SEMKO 101 55443 0414 89415	8736197 8736198 6862

Part Number	Temp. Char.	Cap. Value (pF)	Cap. Tol. (%)	Recognized Standards					Rated Voltage*
				UL 1414	CSA C22.2 No. 1	SEMKO	BS 415	VDE 565-1	
DSR1100-56 E222MVA2-EA	E	2200	±20	●	●	●	●	●	VA2
DSR1120-56 E302MVA2-EA	E	3000	±20	●	●	●	●	●	VA2
DSR1150-56 E472MVA2-EA	E	4700	±20	●	●	●	●	●	VA2
DSR1100-56 FZ472P VA2-EA	FZ	4700	+100, −0	●	●	●	●	—	VA2

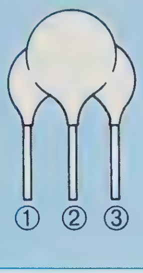
*VA2 : for VDE565-1, SEMKO, BST ···250VAC
for UL1414, CSA C22.2 No. 1···AC125V

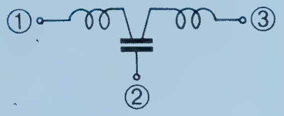
EMI SUPPRESSION FILTERS
SAFETY STANDARD RECOGNIZED EMIFIL® for AC POWER SUPPLIES

muRata ERIE

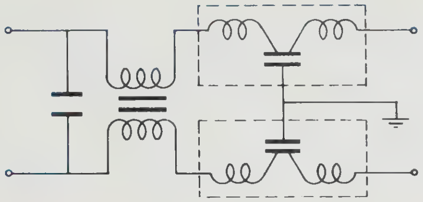
DSR Series

EQUIVALENT CIRCUIT



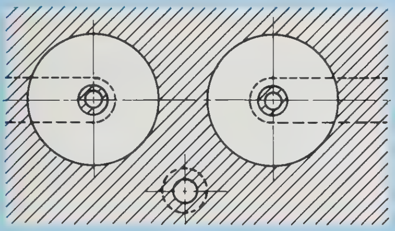


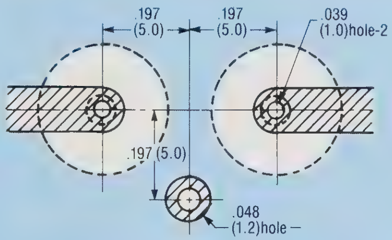
TYPICAL APPLICATION



EA type can be used as line-by-pass (Y) capacitor

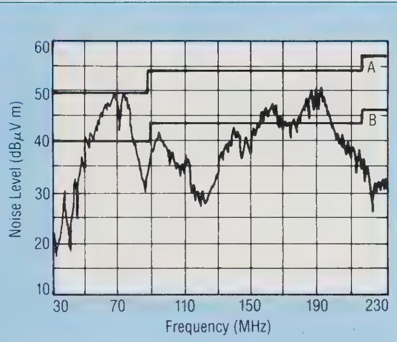
RECOMMENDED P.C. BOARD PATTERNS



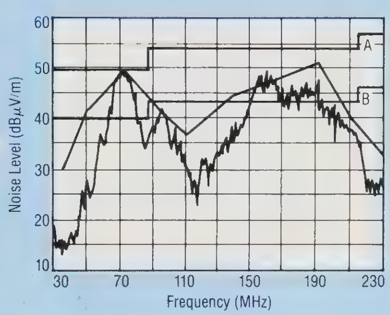


Make ground connection as wide as possible but with a distance as close as possible to the chassis ground.

MOUNTING EFFECT (Procedure for suppression of radiated noise from power supply cord.)

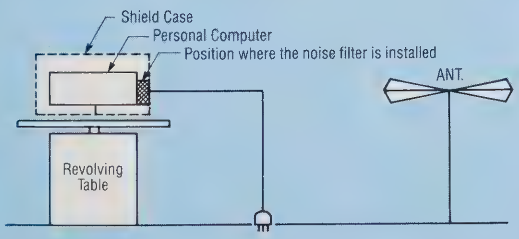


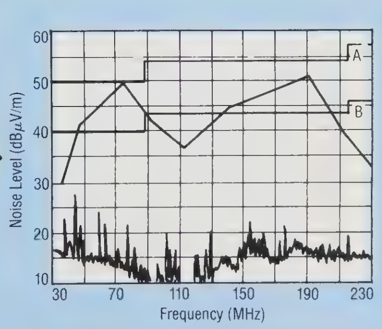
Initial Noise Level



Case mounted conventional 2-terminal capacitor on P.C.B. (There is only slight effect on noise over 30MHz.)

The diagram below shows test fixture for comparison charts illustrated.

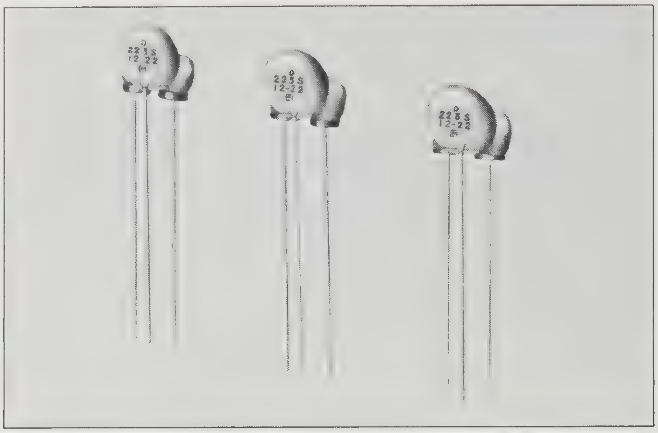




Case mounted PLI-C type AC noise filter incorporating EA type. (Noise over 30MHz is fully suppressed.)

EMI-GUARD VARISTOR-CAPACITOR

DSS710 Series



3-Terminal Varistor-Capacitor EMI Filter, that removes high-frequency noise and high-voltage surges

The DSS710 EMI-GUARD uses a new capacitor element which provides the varistor function. This varistor-capacitor not only works as a bypass capacitor but also lets high-voltage surges flow to ground.

The varistor-capacitor used in the DSS710 EMI-GUARD has a 3-lead structure, so that its high frequency functions are substantially better than those of conventional capacitors. Furthermore, it is combined with ferrite bead to form a T-shaped filter circuit that most effectively suppresses EMI.

The DSS710 EMI-GUARD efficiently removes fast-rising transients and high-frequency EMI above 50 or 60 MHz which conventional capacitors and varistor-capacitors are incapable of removing.

Varistor-capacitors are used even where conventional EMI-filters fail. They are self-healing and effective in circuits having 500-600V impulses.

DIMENSIONS: in. (mm)

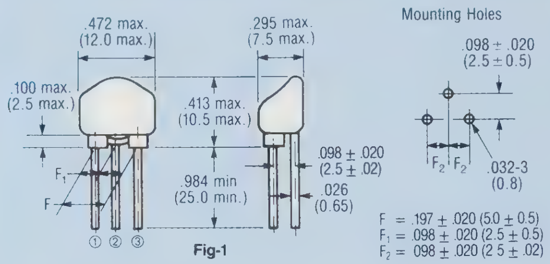


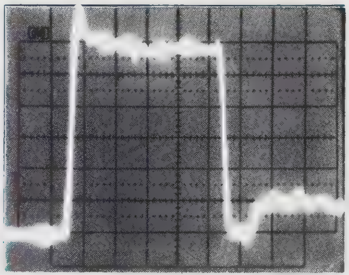
Fig-1

NOTE: Footprint for Bulk and Tape & Reel are different. Consult factory for details.

RATINGS

Part No.	DSS710 D 223 S 12-22
Capacitance	$22000pF^{+50}_{-20}\%$
DF	5.0% max.
Insulation Resistance	1 MΩ min.
I_c (max.)	7 A max.
Rated Voltage	12 VDC
Varistor Voltage	22 VDC ± 20%
Voltage Nonlinear Factor	1.25 max. (V10mA/V1mA)
Temperature Characteristics	$^{+20}_{-30}\%$ (−25°C to +85°C)
Operating Temperature Range	−40°C to +100°C
Inductance	0.8μH × 2 (1 KHz)

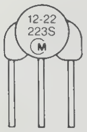
NOISE ABSORPTION EFFECT OF EMI-GUARD

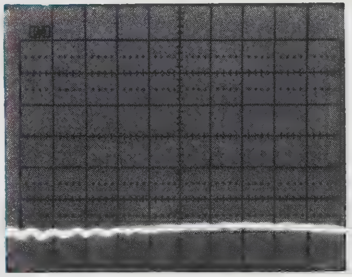


SCALE:
⬍ 200V/Div.
⬌ 10NS/Div.

Waveform when EMI-GUARD is not used. (surge from a noise simulator)

EMI-GUARD is used to suppress the surge shown below.





Waveform after the noise passes through EMI-GUARD. Protection of circuitry is achieved.

The EMI-GUARD is capable of removing even 1200V surges and will withstand 2000V impulses.

APPLICATIONS

Systems	Lines to be connected to	Effects
Engine Controllers	Power lines I/O lines for low-frequency current	Protection of systems from excessive voltage. Prevents ignition noise, lightning surges, etc. from causing malfunctions.
Automobile Audio Equipment	Power lines, audio output lines	Protection of systems from excessive voltage. Prevents ignition noise from influencing audio current.
Computers	Power lines, I/O lines for low-frequency current	Protection of systems from excessive voltage. Prevents radiation and conduction noise.
DC Motors	Power lines	Prevention of brush noise.

EMI-GUARD VARISTOR-CAPACITOR

DSS710 Series

3-TERMINAL STRUCTURE

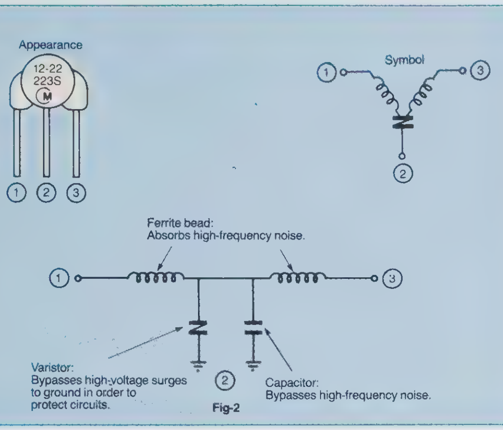

Appearance
12-22
223S
M
① ② ③
Symbol
①
③
②
Ferrite bead:
Absorbs high-frequency noise.
①
③
Varistor:
Bypasses high-voltage surges to ground in order to protect circuits.
②
Capacitor:
Bypasses high-frequency noise.

Fig-2

The reason the 3-terminal structure provides excellent high frequency characteristics.

Bypass capacitors should logically be able to remove more noise as frequency increases. In actual fact, the electrodes and lead wires of the capacitor have series inductance as shown in Fig. 3, and this causes an LC resonance when the frequency is between 1 MHz and 50 MHz. As a result, when the frequency is higher than the self-resonance frequency, the noise suppression capability of the bypass capacitor is drastically reduced because the capacitor functions as inductor. To solve this problem, the DSS series has one side of the capacitor electrodes connected to two lead wires. This eliminates the series inductance to the capacitor. Furthermore, a ferrite bead is attached to each lead wire to form a T-shaped filter, thus providing efficient noise suppression.

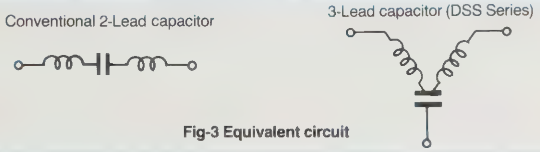


Fig-3 Equivalent circuit

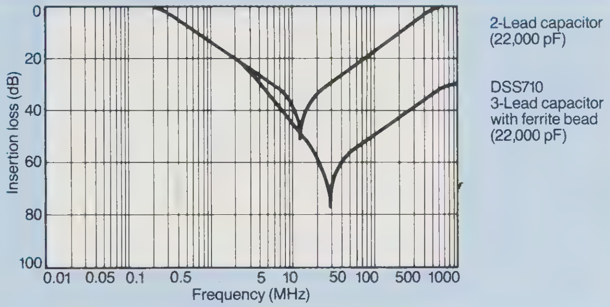


Fig-4 Insertion Loss Characteristics

CHARACTERISTICS

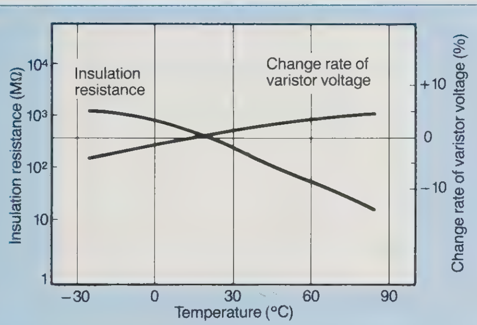


Fig-5

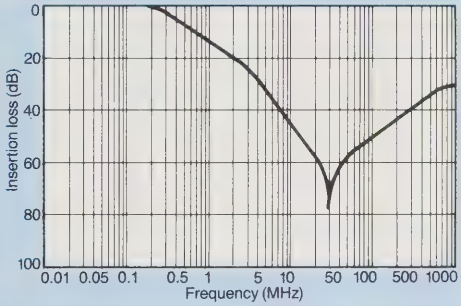


Fig-7

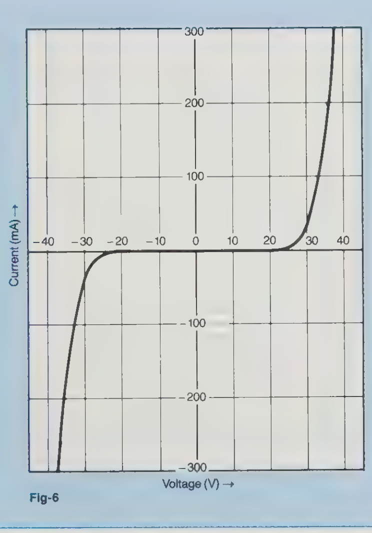
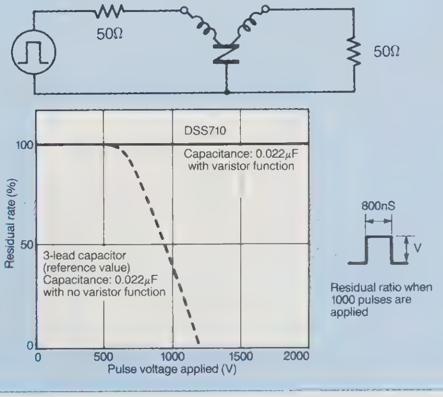


Fig-6

The DSS710 EMI-GUARD uses a self-healing varistor-capacitor, so that it can be used under a 500 to 600V surge which would permanently damage conventional disk-type EMI filters. As shown below, the EMI-GUARD withstands 2000V impulses applied 1000 times.



TEST SPECIFICATIONS

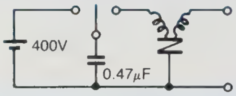
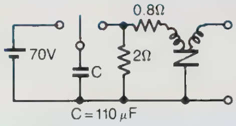
Items	Rated Values	Test Methods
Overload	Values of Table A should be met.	1.4 times the varistor voltage (V_1) is applied for 5 minutes at room temperature.
Surge Test (I)	Values of Table A should be met.	At room temperature. Surges are applied 10^5 times every 2 seconds. Then, after 1 or 2 hours, the sample is measured. 
Surge Test (II)	Values of Table A should be met.	At room temperature. Capacitor "C" is charged with 70V, then discharged to apply the voltage to the sample. Tested once (resuming JASO A-1). 
High-temperature Load	Values of Table A should be met.	At a temperature of 85±3°C. The varistor voltage V_1 is continuously applied to the sample for 1000 to 1024 hours. Then it is left at room temperature, for 4 to 24 hours before measuring.

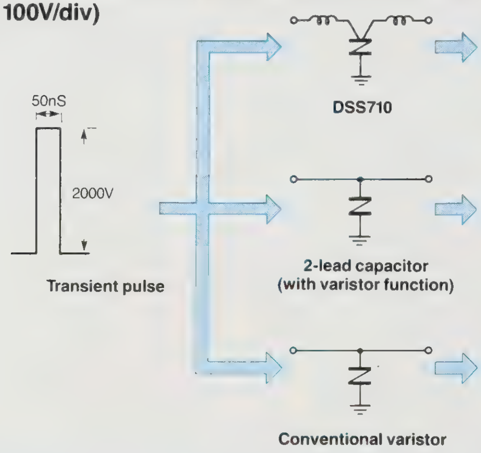
Table A

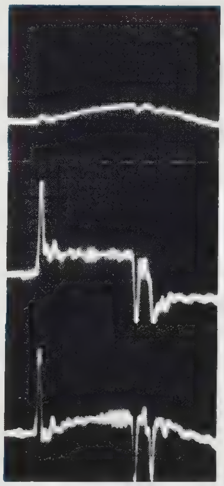
Items	Performance
Rate of Capacitance Change	Within ±15%
DF	5% max.
Insulation Resistance	1 MΩ min.
Rate of Change in Varistor Voltage V_1	Within ±15%
Rate of Change in Voltage Nonlinear Factor	Within ±15%

***V_{10}: Voltage when 10mA is applied**
***V_1 : Voltage when 1mA is applied**

COMPARATIVE DATA

(1) Absorption of fast rise time, high-frequency transient (10nS/div, 100V/div)



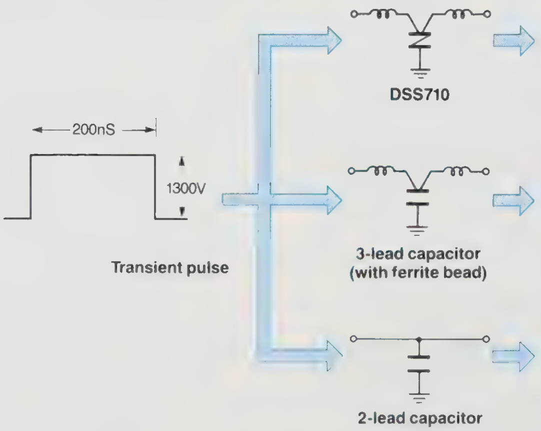


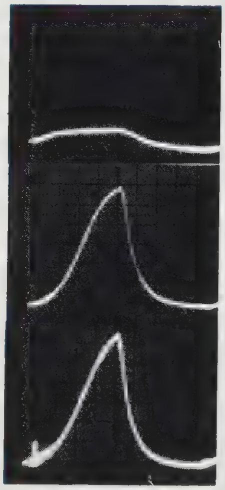
The 3-lead structure eliminates most of the lead inductance. This allows the DSS710 to completely absorb the rising and falling edges of the transient.

The 2-lead capacitor is influenced by lead line inductance, leaving behind some of the rising and falling edges. The residual EMI can cause system malfunction.

As with the 2-lead capacitor.

(2) Absorption of wide-pulse transient (50nS/div, 200V/div)





Bypassing high-voltage, the varistor-capacitor utilizes its varistor function to suppress surge. Thus, circuits are protected from breakdown.

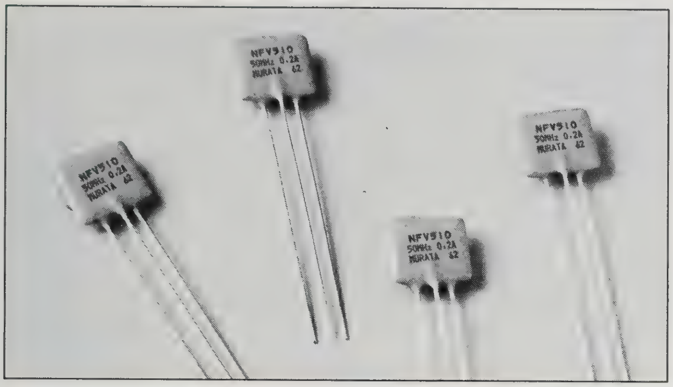
Conventional EMI filters do not work for wide-pulse transients because capacitors are saturated. In this example, the residual 1200V surge can cause system to breakdown.

In case of capacitors, the voltage of the residual surge, 1300V, is higher than that of the above example. The wave height is almost the same as the original.

EMI SUPPRESSION FILTERS
for HIGH SPEED DIGITAL APPLICATIONS

muRata ERiE

NFV510 Series



The NFV510 Series is an efficient noise suppression filter for high-speed digital signal lines where the frequencies of signal and noise components are very close.

Murata Erie has combined its superior inductor and capacitor technologies with a unique circuit configuration to realize outstanding noise suppression characteristics.

These filters meet the noise suppression regulations of FCC, CISPR, and other agencies.

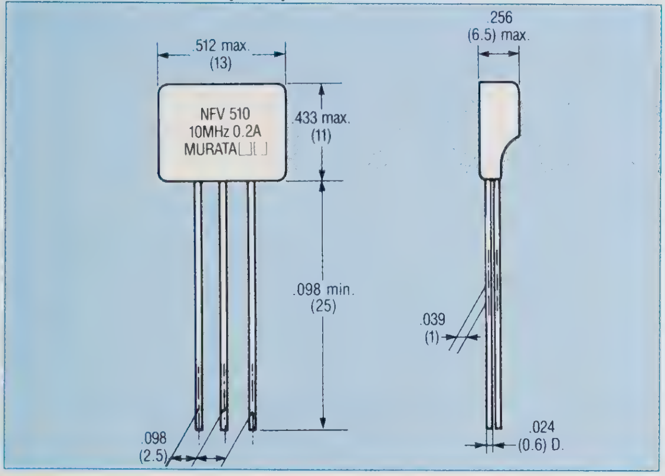
FEATURES

- **Steep attenuation characteristics make this filter most suitable as a suppressor for unwanted radiation in signal lines. Insertion loss approaches 100dB per decade.**
- **High attenuation is obtained through the use of unique high performance inductors.**
- **4 types classified by cut-off frequencies from 10 MHz to 100 MHz allow selection of optimum noise suppression.**
- **Shorter lead lengths are available.**

APPLICATIONS

Noise suppression for RGB signal lines, digital image equipment, computer terminals, digital TV's, etc.

DIMENSIONS: in. (mm)

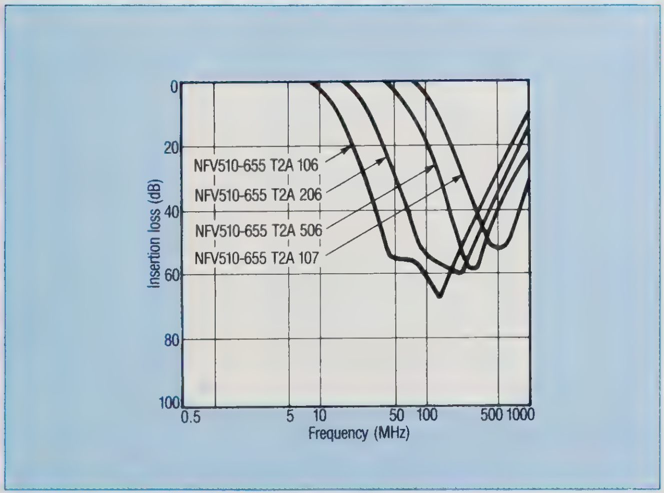


SPECIFICATIONS

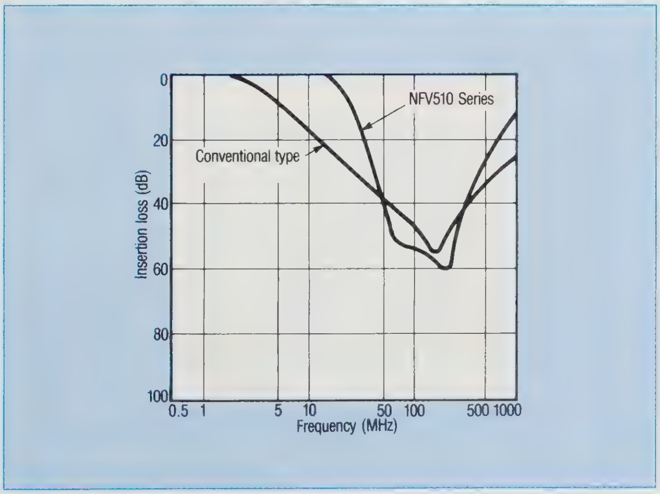
Part Number	Cut-off Frequency	Noise Suppression Band (MHz)		Rated Voltage (V)	Rated Current (mA)
		30dB min.	40dB min.		
NFV510-655 T2A 106	10MHz	35 to 200	40 to 150	100	200
NFV510-655 T2A 206	20MHz	50 to 350	70 to 250	100	200
NFV510-655 T2A 506	50MHz	150 to 400	200 to 300	100	200
NFV510-655 T2A 107	100MHz	300 to 550	400 to 500	100	200

Temperature Range: –25°C to +85°C

INSERTION LOSS CHARACTERISTICS



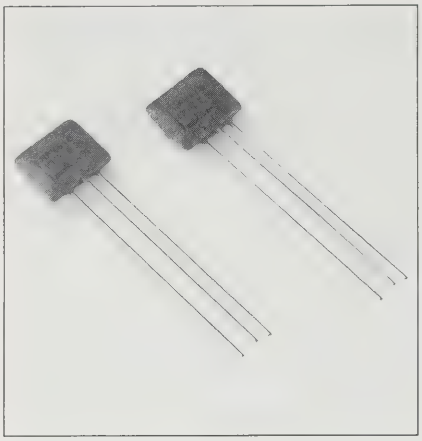
COMPARISON WITH CONVENTIONAL THREE-TERMINAL CAPACITORS



*NFV510 Series can realize noise suppression without reducing effective elements of the signal, because it has steep attenuation characteristics.

EMI SUPPRESSION FILTERS
for HIGH SPEED DIGITAL APPLICATIONS

NFV610 Series



This new high performance noise suppression filter utilizes a unique circuit design and a total components concept to provide exceptional performance in high speed, high impedance digital signal lines. It uses considerably more components than previously available filters so that the high input and output impedances of digital IC's can be matched. This impedance matching greatly reduces the waveform distortions, created by reflections and ringing, that are apparent with conventional filters.

The NFV610 Series of noise suppression filters meets all applicable specifications of the FCC, CISPR, etc.

FEATURES

- **Suppresses reflections and ringing**
- **High attenuation over wide frequency spectrum**
- **Undistorted waveform reduces high frequency noise generating signal components**
- **High voltage rating provides reliability in strong electromagnetic fields**
- **Four models with cut-off frequencies from 10-100 MHz allow circuit optimization**

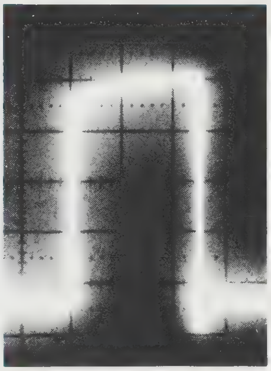
APPLICATIONS

Computers and peripherals, instrumentation and process controls, automotive electronics, telecommunications equipment, consumer electronics.

TYPICAL FILTER PERFORMANCE

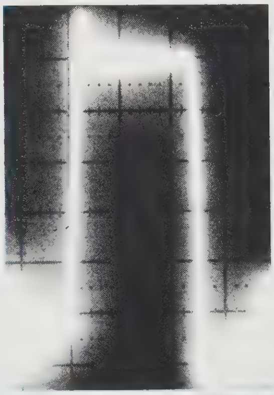
High Speed Digital Signal Waveform

TTL74ASO4



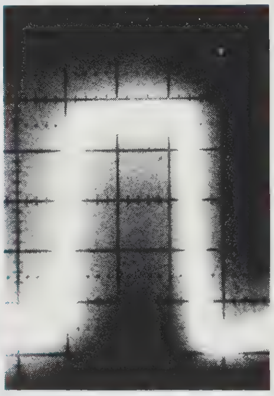
High-speed pulse contains high frequency noise elements caused by leading/trailing edge.

Conventional LC Filter



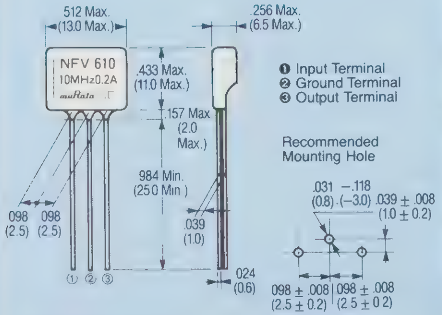
Sufficient noise suppression cannot be performed, because waveform is distorted by load capacity and reflection.

NFV610 Filter



All high frequency elements can be removed without distorting waveform.

DIMENSIONS: in. (mm)



*Short leads can be made on order.

SPECIFICATIONS

Part Number	Cut-Off Frequency	Minimum Attenuation (dB)					
		10MHz	20MHz	50MHz	100MHz	200MHz	500MHz
NFV610-655 T2A 106	10MHz	*	3	10	20	35	25
NV610-655 T2A 206	20MHz		*	3	10	15	25
NFV610-655 T2A 506	50MHz			*	3	10	25
NFV610-655 T2A 107	100MHz				*	3	15

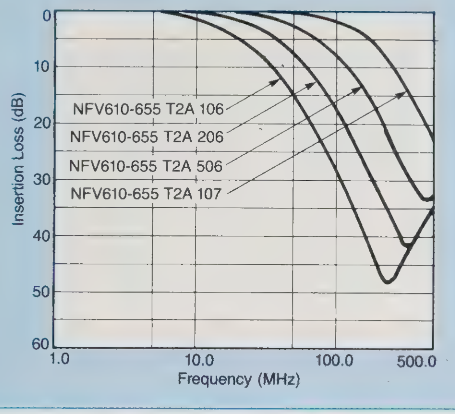
*6dB max

Rated Voltage: 100 VDC, Rated Current: 200mA
Temperature Range: −25°C to +85°C

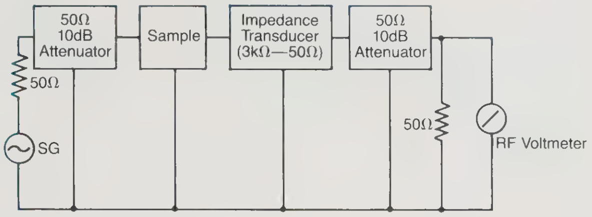
EMI SUPPRESSION FILTERS
for HIGH SPEED DIGITAL APPLICATIONS

NFV610 Series

INSERTION LOSS CHARACTERISTICS



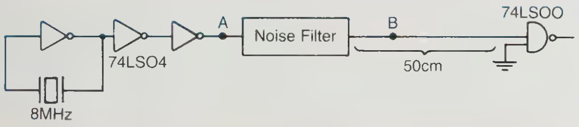
INSERTION LOSS MEASURING CIRCUIT



*Measurement is performed by using 50Ω-3KΩ measuring circuits in order to match operating conditions of the digital signal circuit.

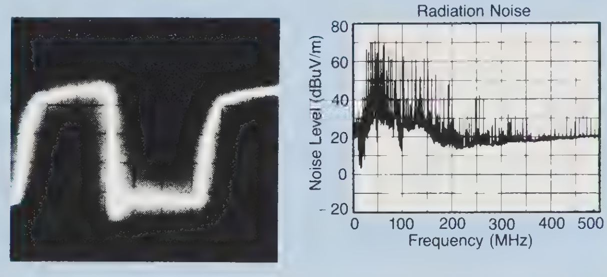
ACTUAL NOISE SUPPRESSION TEST RESULTS

MEASURING CIRCUIT



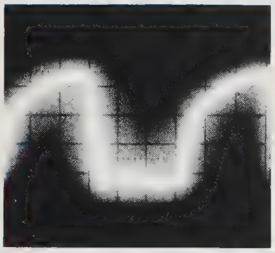
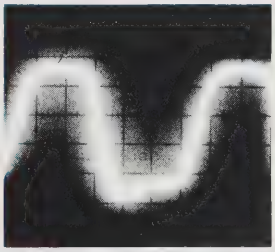
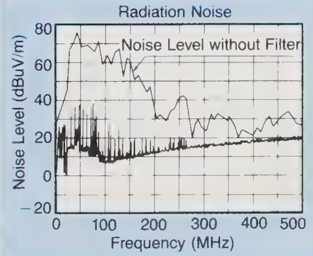
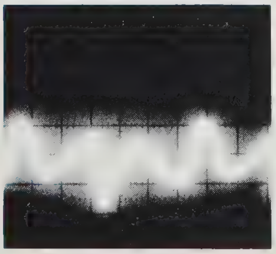
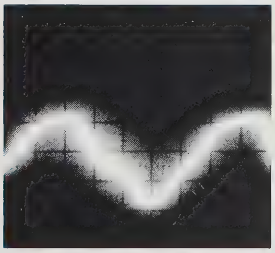
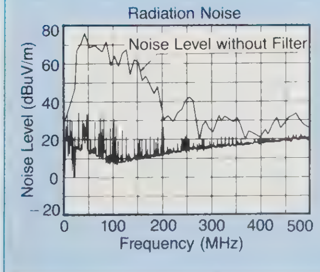
In NFV610 Series filter, since impedance matches the actual IC circuit, a large noise suppression effect can be obtained without distorting waveform. On the other hand, since impedance of the conventional LC filter is designed by 50Ω system, if connected directly to ICs, causes mismatching, resulting in generation of waveform distortions.

HIGH SPEED PULSE WAVEFORM and HIGH FREQUENCY NOISE—NO FILTER—10 MHz

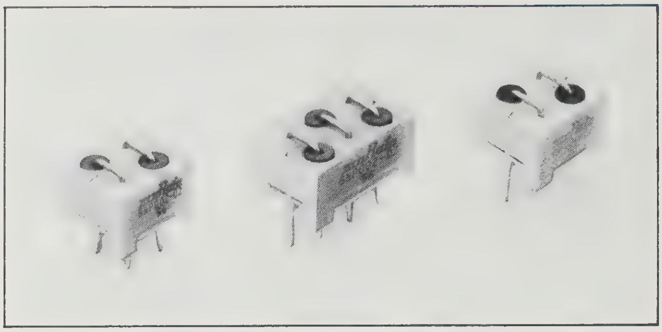

High Speed Pulse Waveform

High Frequency Noise Spectrum

TYPICAL NOISE SUPPRESSION COMPARISONS—WITH FILTERS—10 MHz

Type of Filter	Input Waveform (Point A)	Output Waveform (Point B)	Noise Suppression Effect
NFV610 Series filter (Cut-off frequency 10 MHz)			 A large noise suppression effect can be obtained without distorting waveform.
Filter combined with conventional LCs (Cut-off frequency 10 MHz)			 Waveform is distorted simultaneously with noise suppression.

BNP002/004 Series



Block type BNP002 filters completely eliminate noise from extremely wide frequency bands. The BNP002 is ideal for eliminating noise in logic signal circuits and is designed to perform superbly through the use of through-type barrier layer capacitors, and bead inductors.

Each block contains a number of compact EMI suppression filters. In addition, the input/output terminals and the grounding terminal are aligned in the same direction, thus permitting fast and easy assembly on any type of PC board.

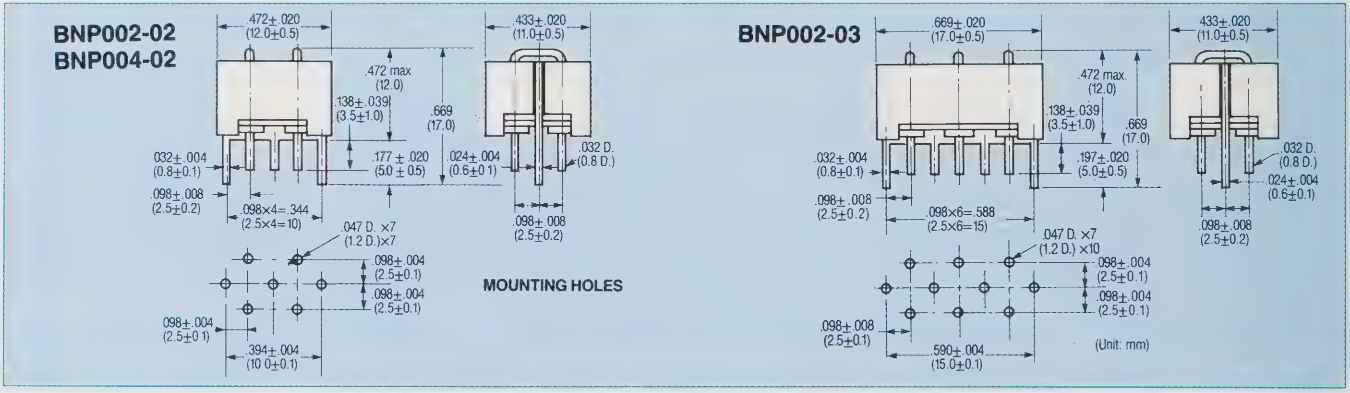
APPLICATIONS

Noise elimination from signal lines and DC power sources in engine control units, digital equipment and computer terminals.

FEATURES

- **The EMIFIL BNP002 incorporates through-type barrier layer capacitors in Pi circuits, obtaining significantly large insertion losses over an extremely wide frequency range – from 15MHz up to 1GHz.**
- **The cut-off frequency is designed to be at several MHz, which is ideal for eliminating noise from any circuit in which the signal frequency and the noise frequency are relatively close together.**
- **Since all noise in plural signal lines can be eliminated by one filter block, minimum board space is utilized.**
- **There are no connections in the feed-thru current circuits, thus ensuring highly reliable performance.**
- **Both the input/output terminals and the grounding terminal are aligned in the same direction, permitting fast and easy installation on any type of PC board.**

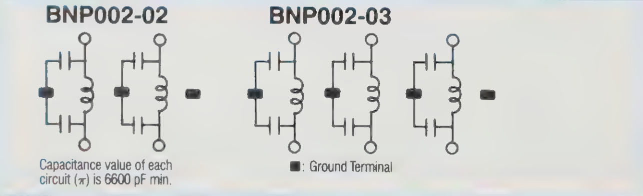
DIMENSIONS: in. (mm)



SPECIFICATIONS

Item	Specifications		
Part Number	BNP002-02	BNP002-03	BNP004-02
Number of Circuits	2	3	2
Circuit Construction	π		
Operating Temperature Range	−40°C to +100°C		
Rated Voltage	50VDC		
Withstand Voltage	300VDC		125VDC
Maximum Current Capacity	10ADC		
Insulation Resistance	100MΩ min.		
DC Resistance	0.05Ω max., (20°C to 25°C)		
Insertion Loss	20MHz to 500MHz: 40dB (20°C to 25°C) min.		300MHz to 1GHz 40dB min.

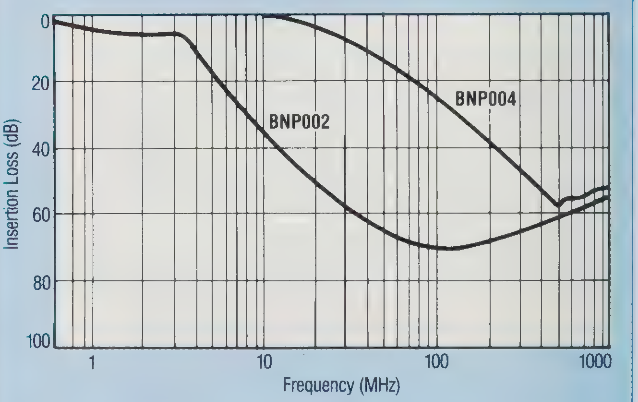
EQUIVALENT CIRCUIT



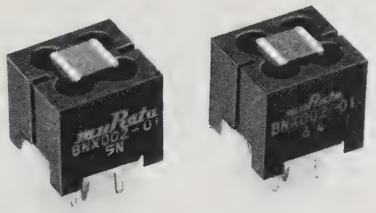
Capacitance value of each circuit (π) is 6600 pF min.

■: Ground Terminal

INSERTION LOSS CHARACTERISTICS



BNX002/003/005 Series



Block-type BNX002 filters completely eliminate noise from extremely wide frequency bands. The BNX002 is perfect for use in DC power circuits, and is designed to perform superbly—through the use of through-type barrier layer capacitors, monolithic chip capacitors and bead inductors.

Each block contains a number of compact EMI suppression filters. In addition, the input/output terminals and the grounding terminal are aligned in the same direction, thus permitting fast and easy assembly on any type of PC board.

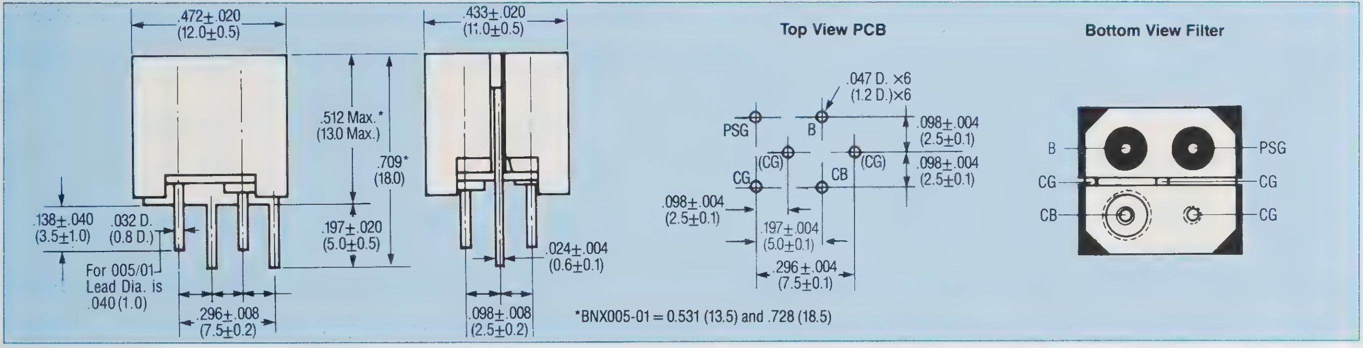
APPLICATIONS

Noise elimination from signal lines and DC power sources in a variety of switching power sources, engine control units, digital equipment and computer terminals.

FEATURES

- **The EMIFIL BNX002 incorporates a feed-thru-type barrier layer capacitor and a chip capacitor which are interconnected. This combination enables the BNX002 to achieve a significantly large insertion loss throughout the extremely wide frequency range of 0.5MHz to 1GHz, which covers the AM and UHF-TV broadcast frequency bands.**
- **Non polarized—but care must be taken to ensure that terminal with inductor on ground line faces EMI source.**
- **The filter is extremely compact since only one filter block is needed to completely eliminate noise from both the positive and ground lines.**
- **There are no connections in the feed-thru current circuits, thus ensuring highly reliable performance.**
- **Both the input/output terminals and the grounding terminal are aligned in the same direction, permitting fast and easy installation on any type of PC board.**

DIMENSIONS: in. (mm)

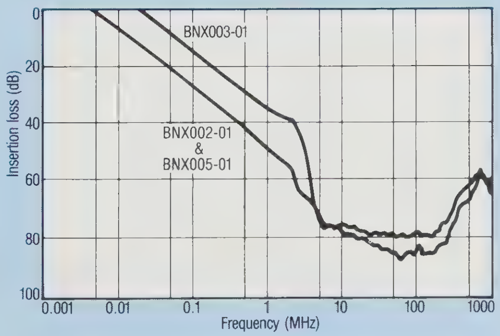


*BNX005-01 = 0.531 (13.5) and .728 (18.5)

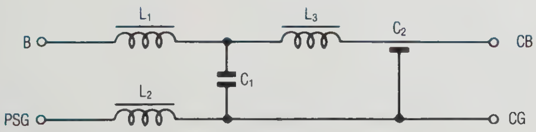
SPECIFICATIONS

Item	Specifications		
Part Number	BNX002-01	BNX003-01	BNX005-01
Operating Temperature Range	−30°C to +85°C		
Rated Voltage	50VDC	150VDC	50VDC
Test Voltage	125VDC	375VDC	125VDC
Maximum Current Capacity	10ADC		15ADC
Insulation Resistance	100MΩ min.		
Insertion Loss	1MHz to 1GHz 40dB min. (20°C to 24°C) (line impedance=50Ω)	5MHz to 1GHz 40dB min.	1MHz to 1GHz 40dB min.

INSERTION LOSS CHARACTERISTICS



EQUIVALENT CIRCUIT

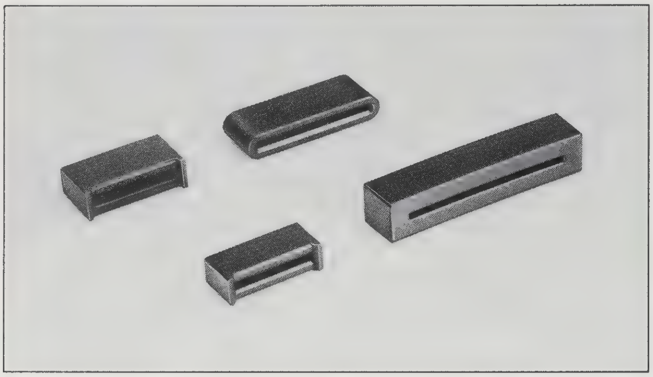


PSG: Power Supply Ground
CG: Circuit Ground

CB: Circuit B

EMI SUPPRESSION FILTERS
for NOISE SUPPRESSION and SPURIOUS OSCILLATION PREVENTION

FSOC Series



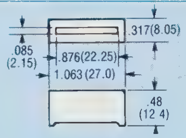
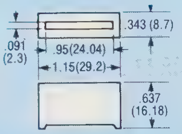
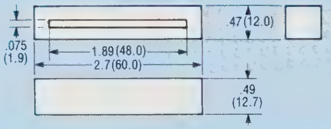
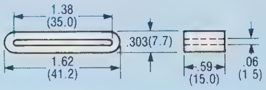
The unique FSOC ferrite cores provide high frequency EMI noise suppression for split and flat cables and find wide application in computers and peripherals to several hundreds of MHz. They are exceptionally easy to install and extremely effective.

FEATURES

- **Extremely effective EMI noise prevention**
- **Wide application in data processing equipment**
- **Simple installation**
- **No soldered connections**

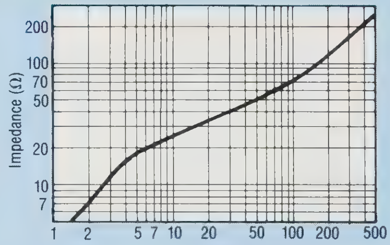
DIMENSIONS: in. (mm)

SPECIFICATIONS

	Part Number	Material	μiac	β_s (Gauss)	T_c (°C)	ρ (Ω-cm)
	**FSOC270RN**	RN	550	3,100	130	$>10^7$
	**FSOC290PB**	PB	150	2,200	200	$>10^7$
	**FSOC600RN**	RN	550	3,100	130	$>10^7$
	**FSOC410RN**	RN	550	3,100	130	$>10^7$

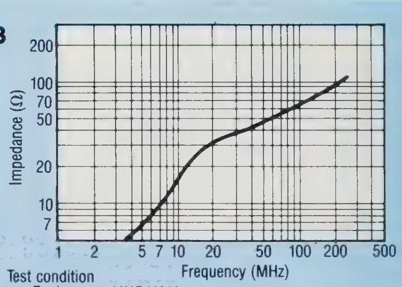
IMPEDANCE CHARACTERISTICS

FSOC270RN



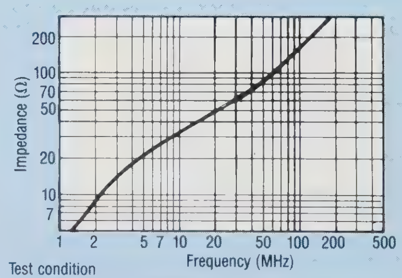
Test condition
• Equipment : Y11P4191A

FSOC290PB



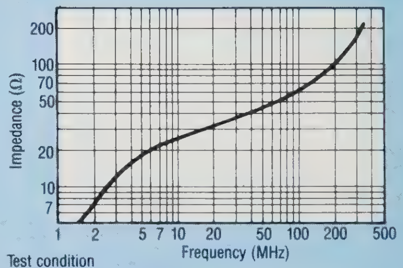
Test condition
• Equipment : Y11P4191A

FSOC600RN



Test condition
• Equipment : Y11P4191A

FSOC410RN

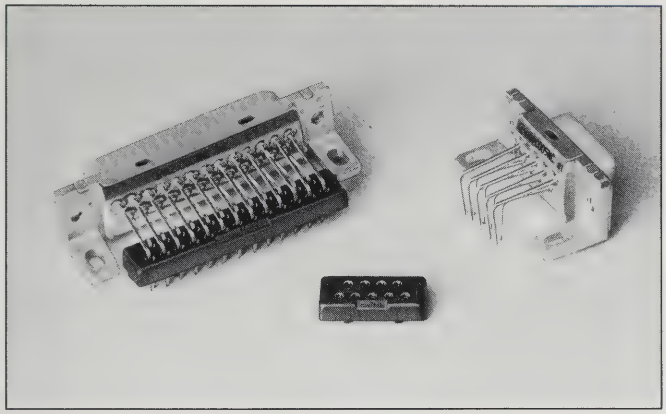


Test condition
• Equipment : Y11P4191A

EMI SUPPRESSION FILTERS for 'D' CONNECTORS

muRata ERIE

BLR Series

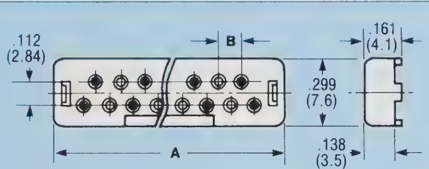


The new BLR EMI filtering device is designed to replace the retainer/pin alignment device on popular pcb-mounted 'D' connectors and provides a means of adding an inductor in series with each pin/lead for noise suppression. With its small overall size and easy installation, the BLR, in addition to improving performance, reduces pcb space requirements and costs.

FEATURES

- **One device places an inductor in series with each connector pin**
- **Lines up connector pins**
- **Effective in both low and high impedance circuits**
- **UL recognized case (UL94V-0)**

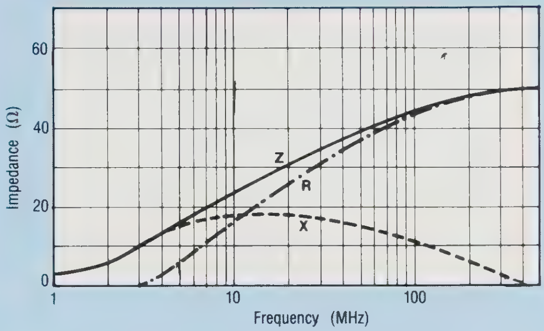
DIMENSIONS: in. (mm)



Applicable connector terminals are
☐ .025 D. (0.64 D.) or .024 D. (0.6 D.) (in cross section)

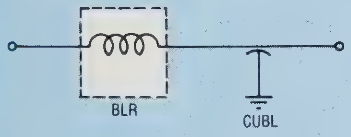
Part Number	A	B
BLRB09RN001	.709 (18.0)	.108 (2.74)
BLRB15RN001	1.02 (26.0)	.108 (2.74)
BLRB25RN001	1.57 (40.0)	.109 (2.76)

IMPEDANCE FREQUENCY CHARACTERISTICS (Typical)

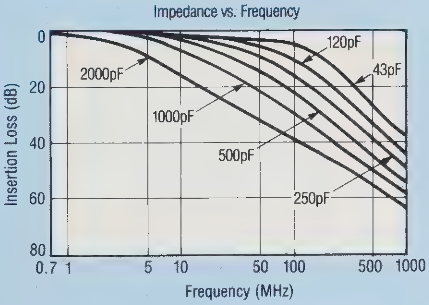


EXAMPLES OF APPLICATIONS AND INSERTION LOSS CHARACTERISTICS

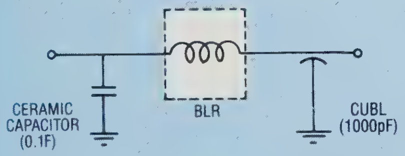
Combination with filter connector (CUBL)



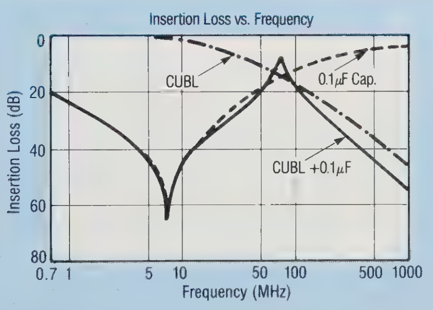
This combination offers excellent insertion loss characteristics.



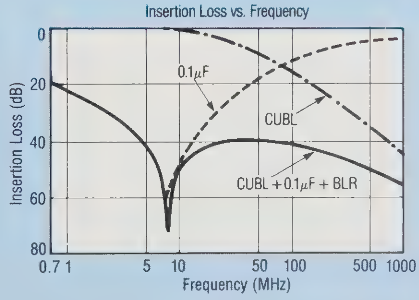
For improving on insertion loss when a combination of filter connector and large value capacitor is used.



Using the BLR series prevents parallel resonance and offers excellent filtering effect from low to high frequencies.

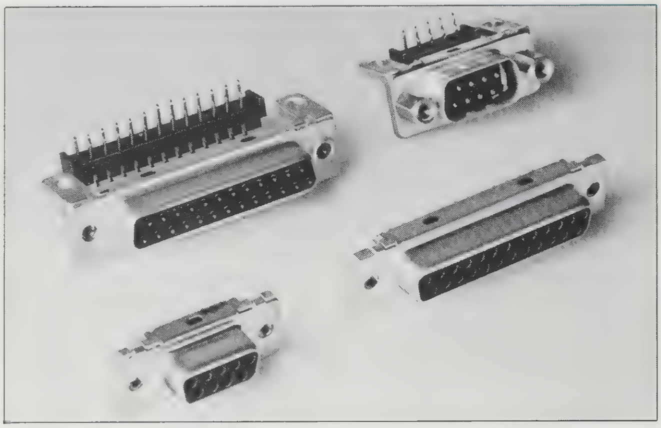


Before using



After using

CUBLO9/25 Series



APPLICATIONS

Personal computers, displays, monitors, printers, modems, land and mobile communications, POS (bar-code reader control units).

These filter connectors are 'D'-type sub-miniature designs, equipped with Murata Erie feed-thru capacitors and shielding. They provide excellent noise suppression over a wide frequency range because of their unique construction. Dimensions are almost identical to ordinary 'D' subminiature designs without filters, and are recommended for computer peripherals and other digital and communication equipment.

FEATURES

- **Wide frequency range insertion loss.**
- **Discrete feed-thru capacitor allows for incorporation of filters on only lines designated.**
- **Compatible with conventional 'D' connectors and has almost identical external dimensions as connectors without filters.**
- **When the noise suppression is required after circuit design is finished, it is easy to replace conventional connectors with the CUBL series.**
- **Tabs on the shield assure good ground.**
- **UL recognized insulation material (UL 94V-O) is used.**

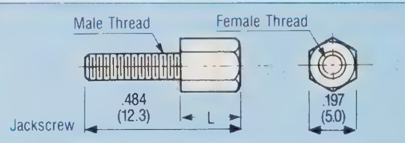
PART NUMBERING

CUBL 25 P N 25 C 001 NC

Connector Type
Number of Lines
9 Lines
25 Lines
Mating
P—Plug
S—Socket
Configuration
P=Straight
G=Right Angle
(Standard—same as unfiltered D Connector)
N=Right Angle
(North American Footprint)
Number of Filtered Lines
Filter Type
C=Capacitor

Capacitance Value	Tolerance
001—2000 pF	−25% +125%
002—1000 pF	−20% + 80%
003— 500 pF	±30%
004— 250 pF	±30%
005— 120 pF	±30%
006— 43 pF	±30%

Mounting Hardware



Available in Right Angle Configuration

Jackscrew	Male Thread	Female Thread	L
Blank	M2.6	M2.6	.248 (6.3)
B	M2.6	4-40 UNC	.248 (6.3)
C	4-40 UNC	M2.6	.248 (6.3)
D	4-40 UNC	4-40 UNC	.248 (6.3)
K	4-40 UNC Self-Locking Thread		
NA	Without Lockscrew, Rear Shell M2.6 Female Thread		
NC	Without Lockscrew, Rear Shell 4-40 UNC Female Thread		

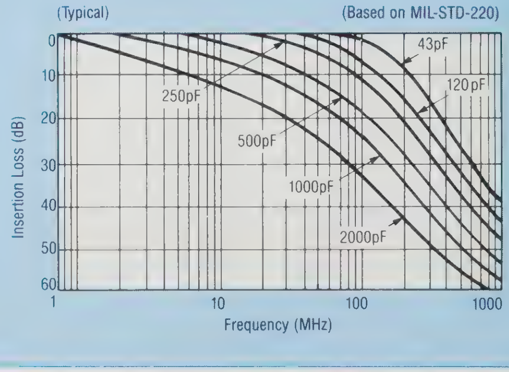
SPECIFICATIONS

Number of Lines	9 & 25
Operating Temperature	−25°C to +85°C
Rated Voltage	100VDC
Test Voltage	250VDC
Rated Current	5A max.
Insulation Resistance	1000MΩ min.

MATERIALS

Part	Materials
Front Shell	Steel, Tin plated
Rear Shell	Zinc diecast, solder plated
Front Insert	Polyamide (UL94V-0)
Pin	Phosphor bronze—gold plated, 0.2μm minimum; solder plated over nickel plating on terminal

INSERTION LOSS CHARACTERISTICS



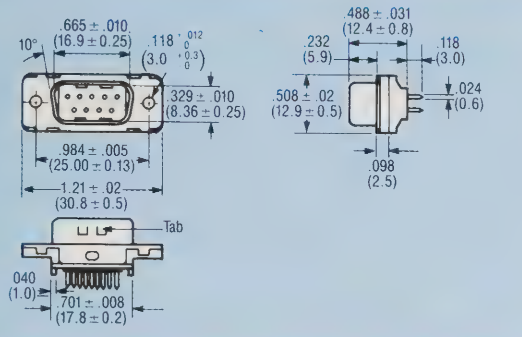
CUBL09 Series

DIMENSIONS: in. (mm)

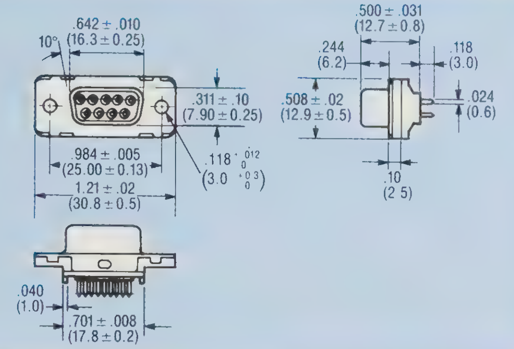
PIN	SOCKET

STRAIGHT

CUBL09PP

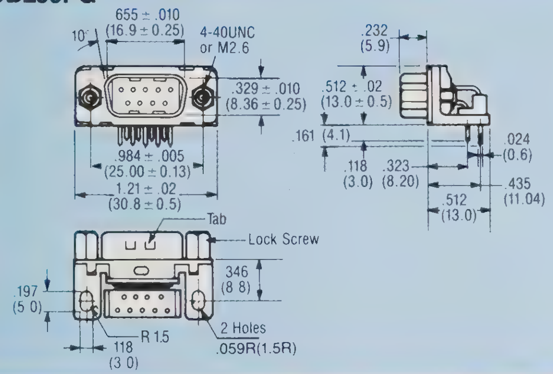


CUBL09SP

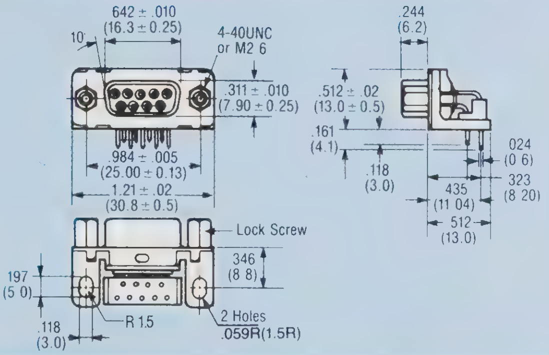


RIGHT ANGLE (STANDARD)

CUBL09PG

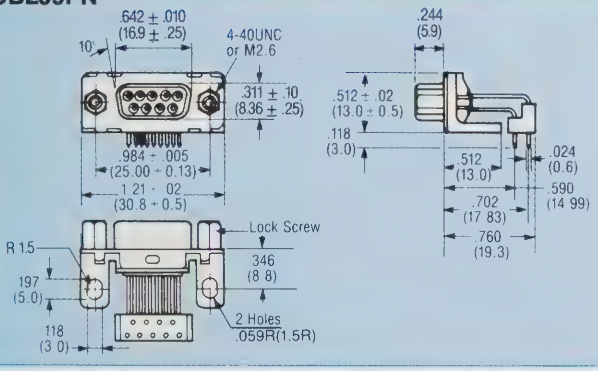


CUBL09SG

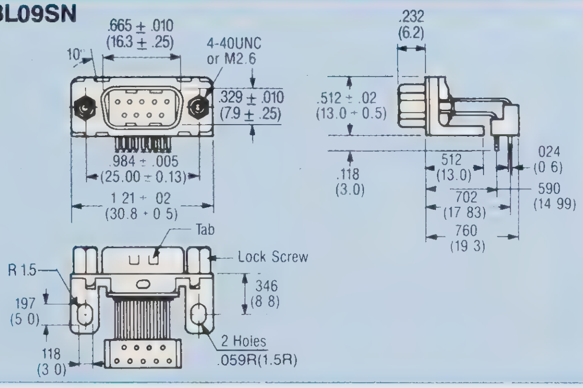


RIGHT ANGLE (NORTH AMERICAN FOOTPRINT)

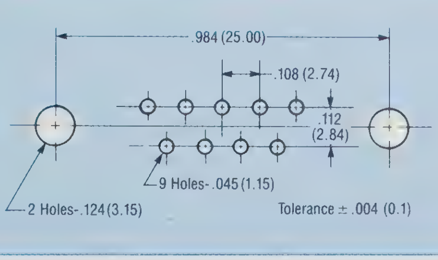
CUBL09PN



CUBL09SN



RECOMMENDED PC BOARD MOUNTING HOLES DIMENSIONS



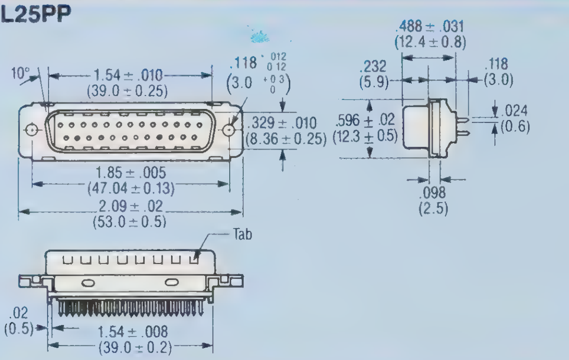
CUBL25 Series

DIMENSIONS: in. (mm)

PIN	SOCKET

STRAIGHT

CUBL25PP



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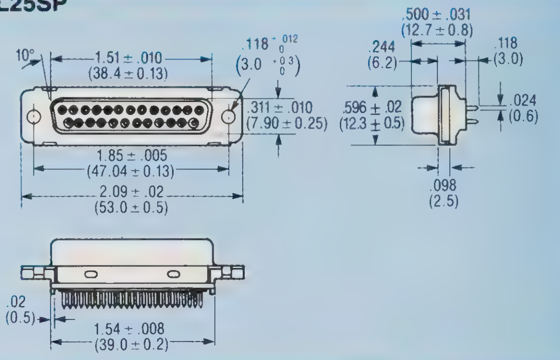
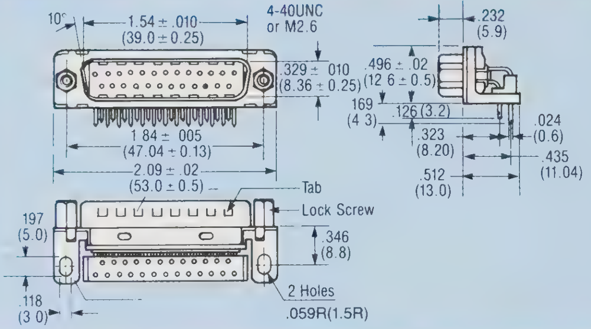
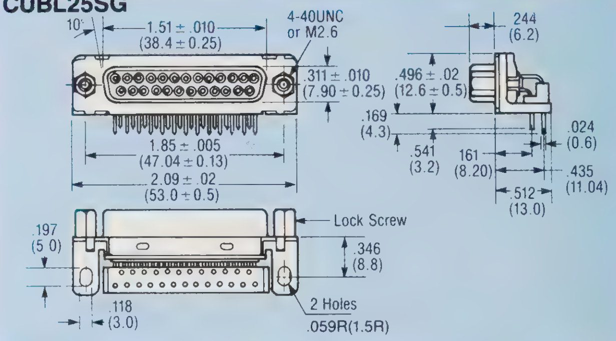


RIGHT ANGLE (STANDARD)

CUBL25PG

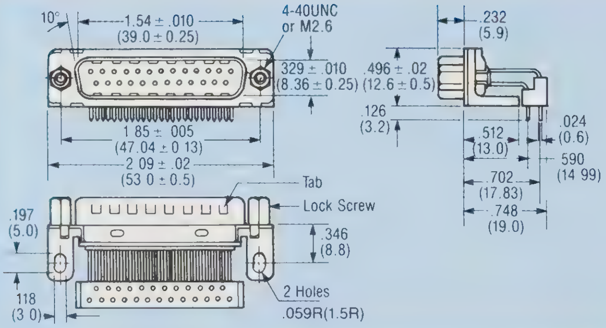


CUBL25SG

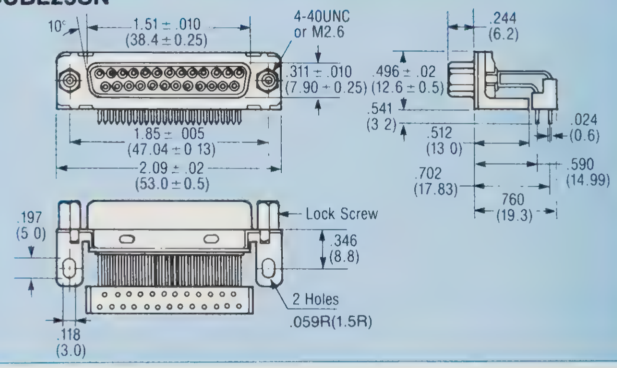


RIGHT ANGLE (NORTH AMERICAN FOOTPRINT)

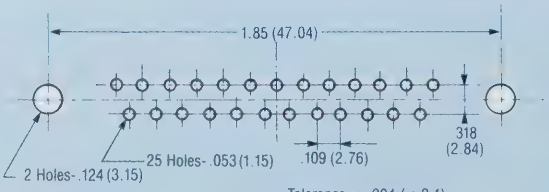
CUBL25PN



CUBL25SN



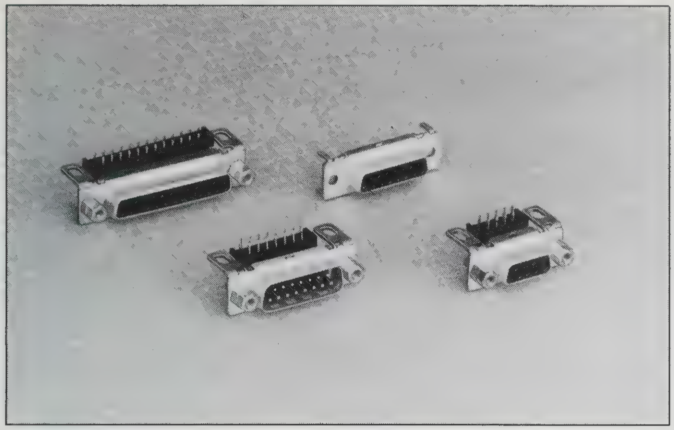
RECOMMENDED PC BOARD MOUNTING HOLES DIMENSIONS



Tolerance ± .004 (± 0.1)

EMI SUPPRESSION FILTERS
LOW COST ‘D’ CONNECTORS

CUBM09/15/25 Series



APPLICATIONS

Personal computers, displays, monitors, printers, modems, land and mobile communications, POS (bar-code reader control units).

These filter connectors are low cost ‘D’ type subminiature designs, equipped with Murata Erie feed-thru capacitors and shielding. They provide excellent noise suppression over a wide frequency range because of their unique construction. Dimensions are almost identical to ordinary ‘D’ subminiature designs without filters and are recommended for computer peripherals and other digital and communication equipment.

FEATURES

- **Low cost.**
- **Wide frequency range insertion loss.**
- **Discrete feed-thru capacitor allows for incorporation of filters on only lines designated.**
- **Compatible with conventional ‘D’ connectors and has almost identical external dimensions as connectors without filters.**
- **When the noise suppression is required after circuit design is finished, it is easy to replace conventional connectors with the CUBM series.**
- **Tabs on the shield assure good ground.**
- **UL recognized insulation material (UL 94V-O) is used.**

PART NUMBERING

CUBM 25 P N 25 002 NC

Connector Type

Number of Lines
9 Lines
15 Lines
25 Lines

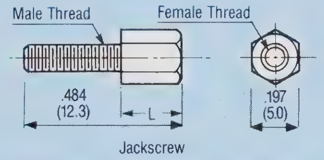
Mating
P—Plug
S—Socket

Configuration
P=Straight (15 lines only)
G=Right Angle (Std.)
N=Right Angle
(North American Footprint)

Number of Filtered Lines

Capacitance Value	Tolerance
001to 2000 pF	−25%, +125%
002to 1000 pF	−20%, +80%
003to 500 pF	±30%
004to 250 pF	±30%
005to 120 pF	±30%
006to 43 pF	±30%

Mounting Hardware



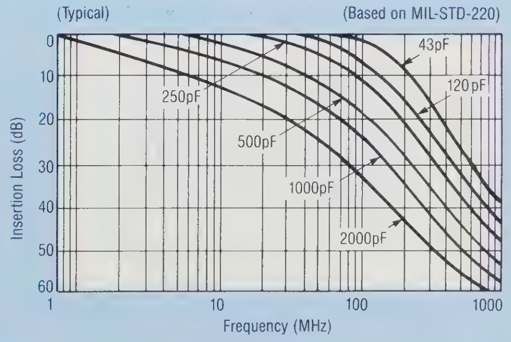
Available in Right Angle Configuration

Jackscrew	Male Thread	Female Thread	L in. (mm)
Blank	M2.6	M2.6	.248 (6.3)
D	4-40 UNC	4-40 UNC	.248 (6.3)
E	M2.6	M2.6	.189 (4.8)
NA	Without Lockscrew, Rear Shell M2.6 Female Thread		
NC	Without Lockscrew, Rear Shell 4-40 UNC Female Thread		

SPECIFICATIONS

Number of Lines	9, 15, 25
Operating Temperature	−25°C to +85°C
Rated Voltage	100VDC
Test Voltage	250VDC
Rated Current	5A max.
Insulation Resistance	1000MΩ min.

INSERTION LOSS CHARACTERISTICS



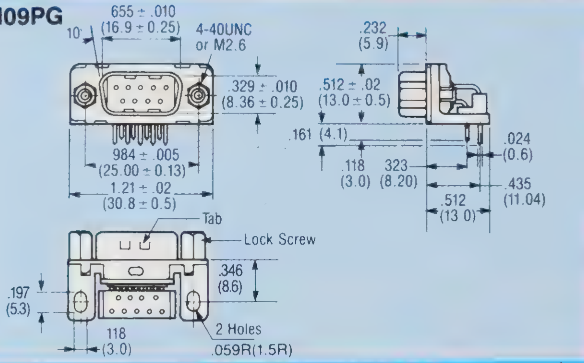
CUBM09 & CUBM25 Series

DIMENSIONS: in. (mm)

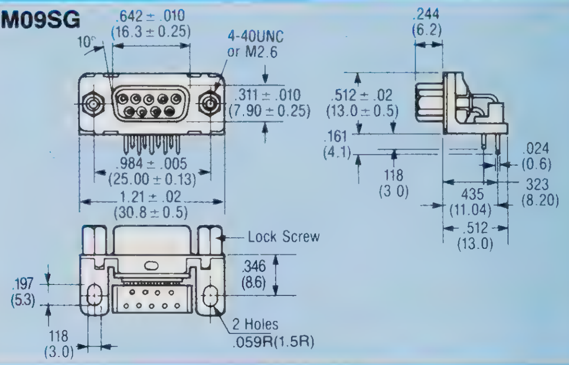
PIN	SOCKET

RIGHT ANGLE (STANDARD)

CUBM09PG

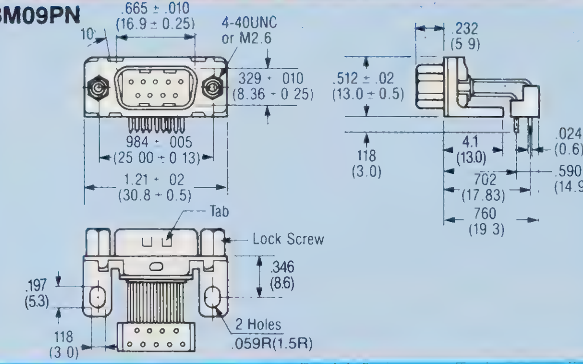


CUBM09SG

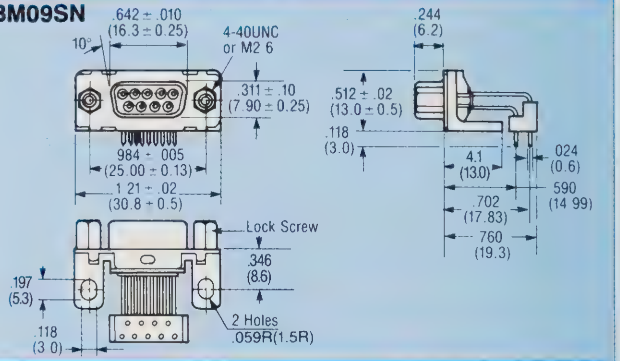


RIGHT ANGLE (NORTH AMERICAN FOOTPRINT)

CUBM09PN

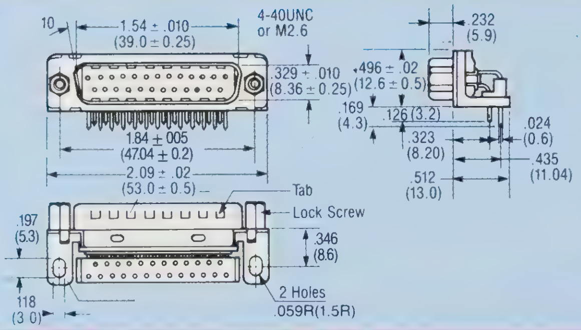


CUBM09SN

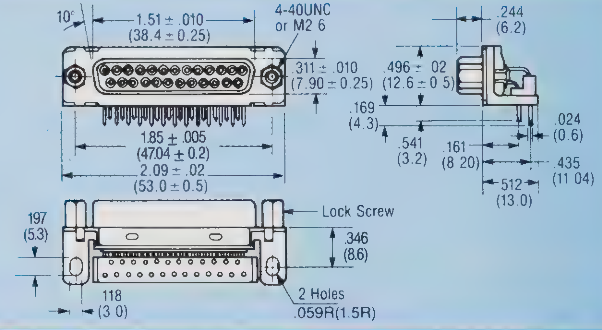


RIGHT ANGLE (STANDARD)

CUBM25PG

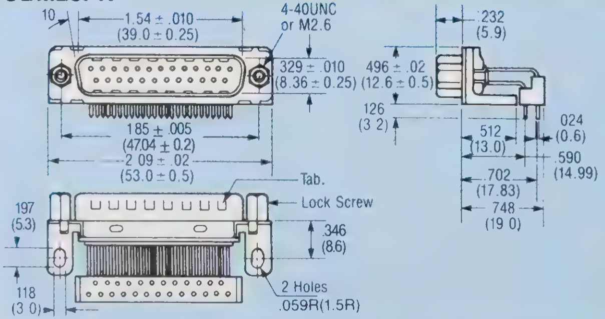


CUBM25SG

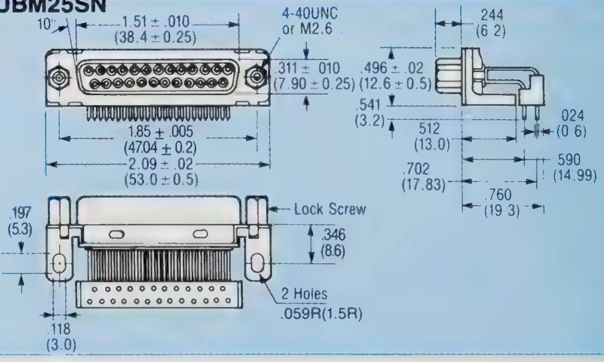


RIGHT ANGLE (NORTH AMERICAN FOOTPRINT)

CUBM25PN



CUBM25SN

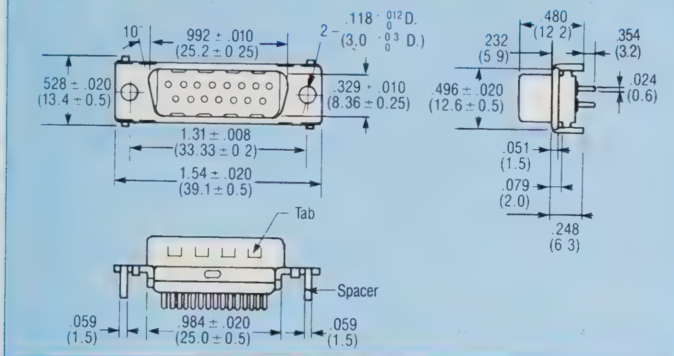


DIMENSIONS: in. (mm)

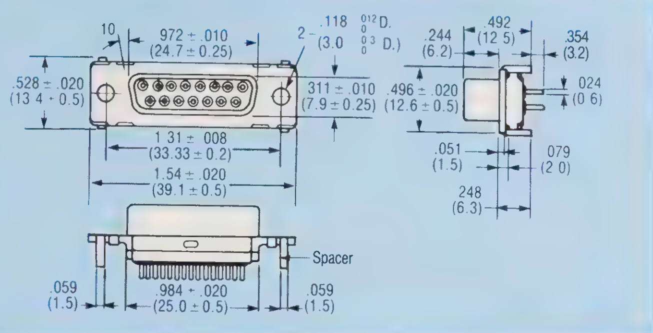
PIN	SOCKET

STRAIGHT

CUBM15PP

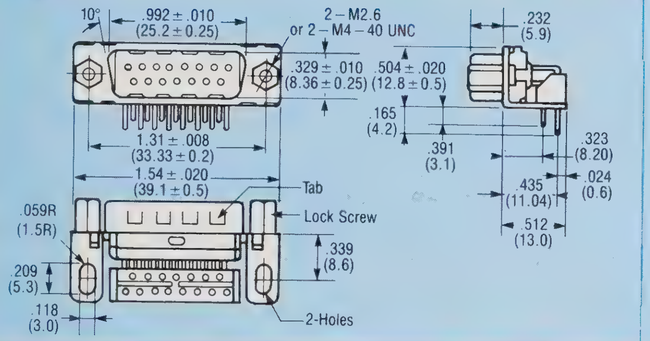


CUBM15SP

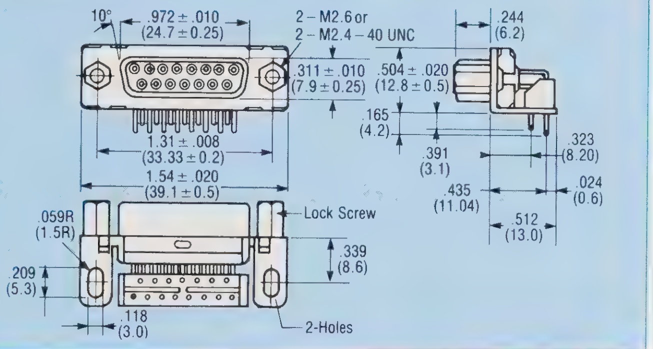


RIGHT ANGLE (STANDARD)

CUBM15PG

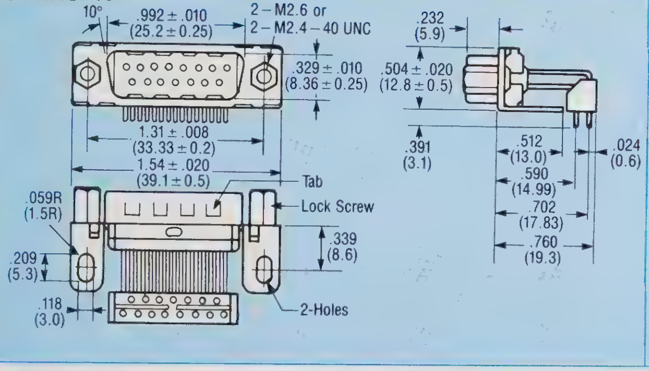


CUBM15SG

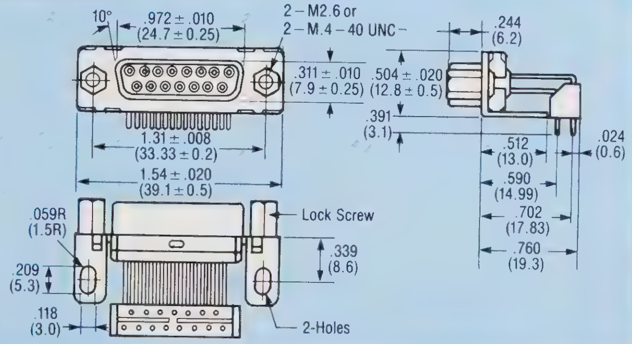


RIGHT ANGLE (NORTH AMERICAN FOOTPRINT)

CUBM15PN

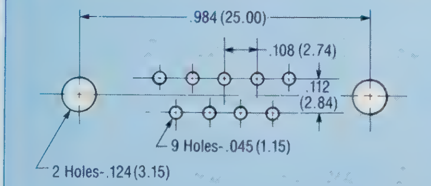


CUBM15SN



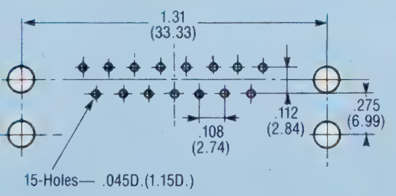
RECOMMENDED PC BOARD MOUNTING HOLES DIMENSIONS

CUBM09



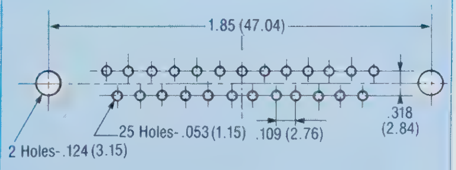
Tolerance ± .004 (0.1)

CUBM25



Tolerance: ± .004 (± 0.1)

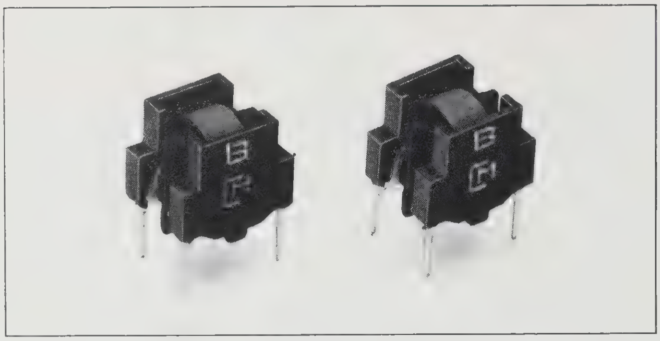
CUBM15



Tolerance ± .004 (± 0.1)

EMI SUPPRESSION FILTERS
COMMON MODE CHOKE COIL

PLT Series



Compact, lightweight, common mode choke coil for DC power supplies for common mode noise suppression from several MHz to several hundred MHz.

FEATURES

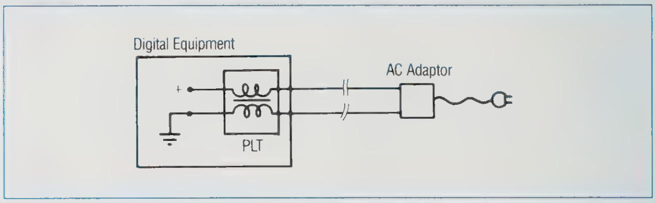
- **Ideal for suppression of common mode noise in high frequencies ranging from several MHz to several hundred MHz.**
- **PCB mount type makes mounting simple.**
- **Only negligible influence on 10MHz high frequency signals (PLT0R53C only).**

APPLICATIONS

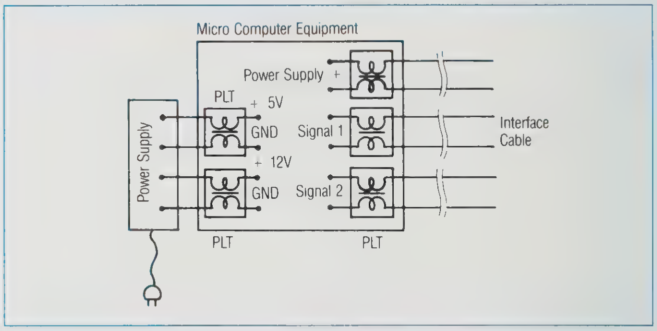
To meet FCC regulations on digital equipment such as computers and computer terminal equipment.

To meet VDE regulations on hand-held digital appliances using AC adaptors (suppression of unwanted radiation from power cords).

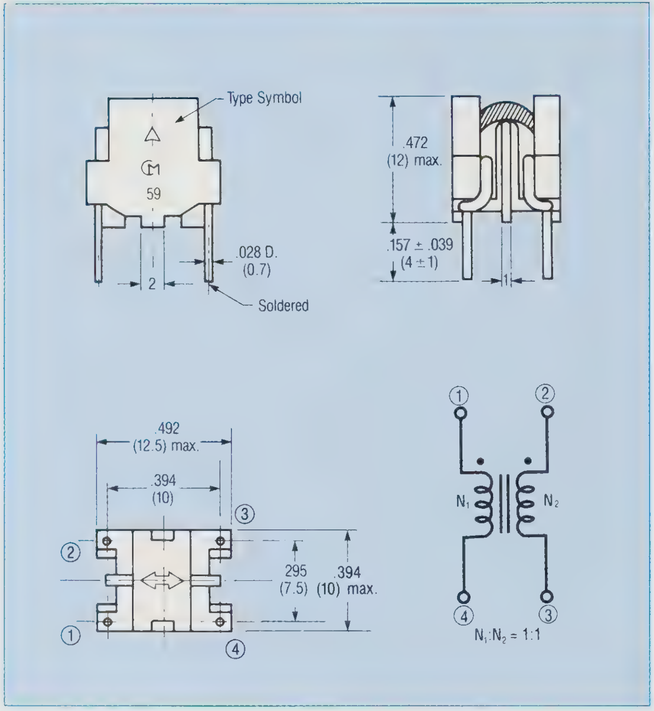
Suppression of radiated noise from cable between AC adaptors and sets.



Suppression of radiated noise from DC power supply and interface cables.



DIMENSIONS: in. (mm)



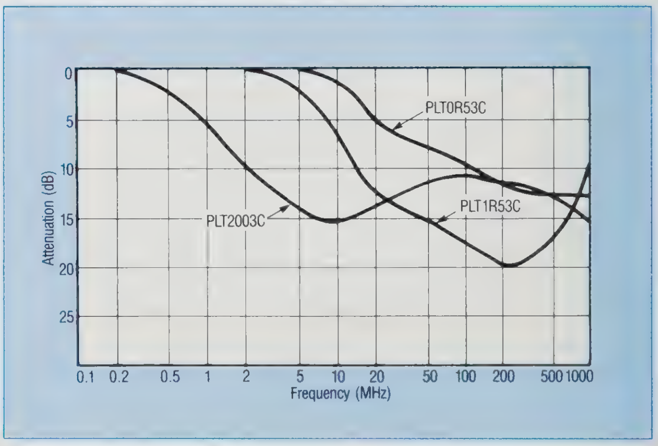
TYPES

Part Number	Inductance (μH) min.	Self-Resonance Frequency (MHz)	Code
PLT0R53C	0.5	1000 min.	B
PLT1R53C	1.5	250	A
PLT2003C	20.0	10	C

SPECIFICATIONS

Item	Rating
Rated Voltage	50VDC
Rated Current	3A
Withstand Voltage	200VAC 1 minute (between coils)
Operating Temp. Range	−25°C to +60°C

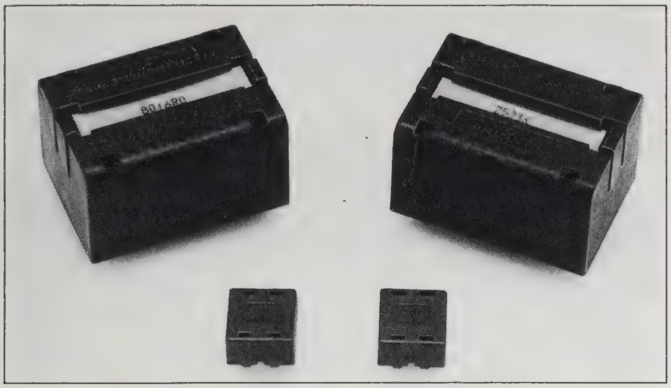
ATTENUATION CHARACTERISTICS



NOISE FILTERS
COMMON MODE CHOKE COIL

muRata ERIE

PLH/PLT Series



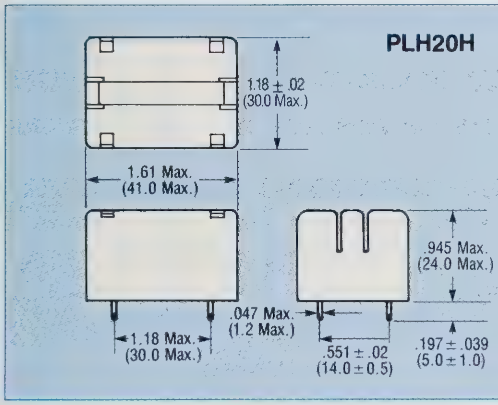
FEATURES

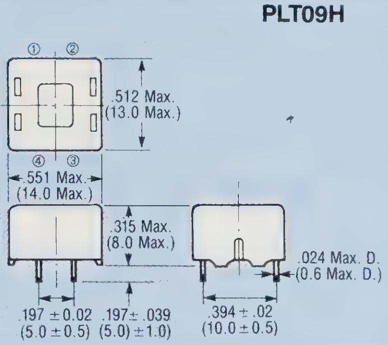
- Extended self-resonant frequency
- Meets FCC, CISPR, VCCI noise requirements
- High current capacity – 3A max.
- High density mounting

APPLICATIONS

Switching power supplies, digital equipment, CTV, VCR, ECR and other electronic equipment and appliances.

DIMENSIONS: in. (mm)





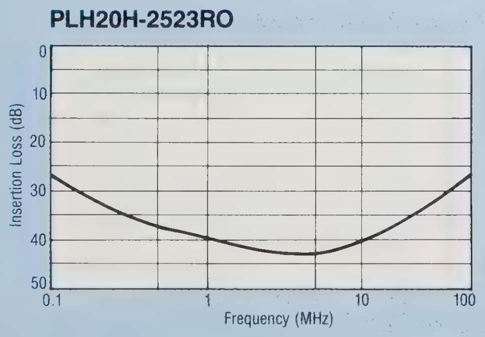
SPECIFICATIONS

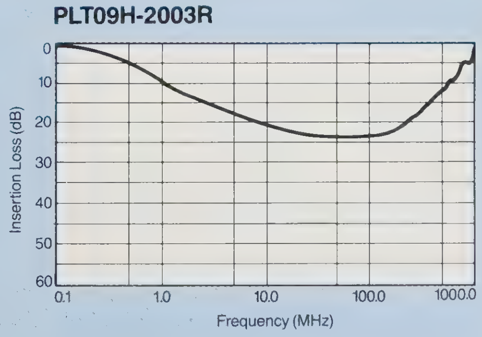
Part Number	Inductance (mH) min.	Rated Current (Amps)	DC Resistance (Ω) max.
PLH20H-9021R0	9.0	1.0	1.0
PLH20H-4622R0	4.6	2.0	0.3
PLH20H-2523R0	2.5	3.0	0.1
PLH20H-8016R0	0.8	6.0	0.1
PLT09H-2003R	20μH	3.0	0.03

RATINGS

	PLH20	PLT09H
Rated Voltage	250VAC	50VDC
Withstand Volt. (between coils)	One minute at 2000VAC	125VDC
Insulation Resistance (between coils: 500 VDC)	100MΩ min.	10MΩ min.
Operating Temp. Range	−25°C to +60°C	−25°C to +60°C
Temp. Char. (Inductance)	20°C $^{+80}_{-50}$%(−25°C to +60°C)	

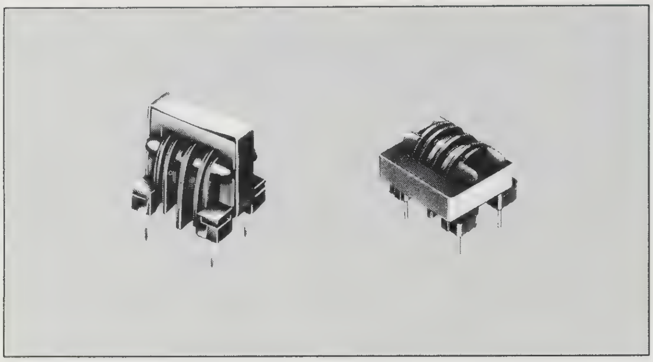
INSERTION LOSS CHARACTERISTICS


PLH20H-2523RO


PLT09H-2003R

NOISE FILTERS
COMMON MODE CHOKE COIL

PLC11 Series



FEATURES

- Suppresses common mode noise in the AM band (525 to 1605KHz) and the FM band (76 to 108 MHz)
- Easly mounted
- Compact and light weight
- Very little inductance drop with increased load current

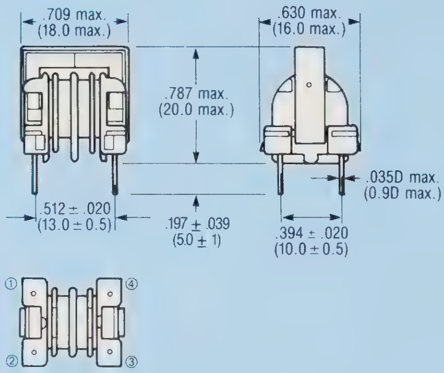
APPLICATIONS

Prevention of mixing of broadcast signals in circuits for multi-functional telephones, PBX and FAX.

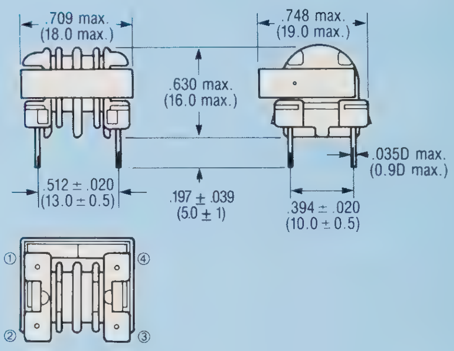
Suppression of EMI interference from AM and FM signals.

DIMENSIONS: in. (mm)

PLC11LS-1520R3



PLC11HS-1520R3

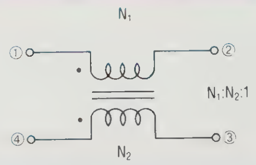


SPECIFICATIONS

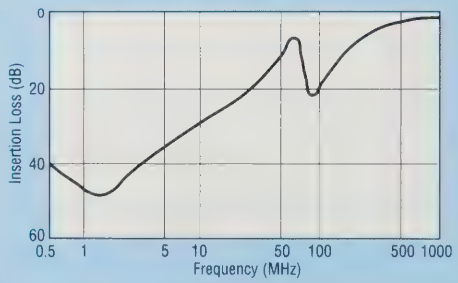
Rated Voltage		150VDC
Withstand Voltage		375VDC
Rated Current		300mA
Insulation Resistance		100MΩ min.
DC Resistance		0.5Ω max.
Inductance		1.5mH min.
Self-Resonant Frequency*	**first**	1.5MHz
	second	95MHz
Operating Temperature Range		−25°C to +60°C

*Typical value

CIRCUIT DIAGRAM



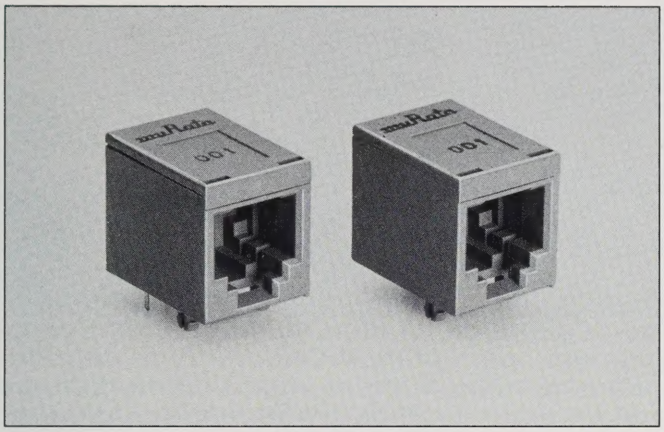
TYPICAL INSERTION LOSS CHARACTERISTICS



FILTER CONNECTOR FOR TELEPHONE APPLICATIONS

muRata ERIE

CUJ Series



FEATURES

- Ideal for suppression of common mode noise at high frequencies.
- Effective even with poor ground.
- Decreases PCB space requirements.
- UL recognized (UL94V-0) case material.

APPLICATIONS

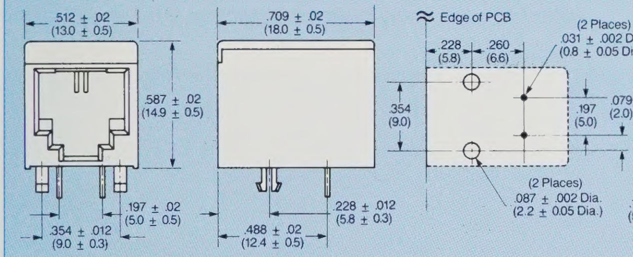
Multi-function telephones, security telephones, modems and Fax systems.

SPECIFICATIONS

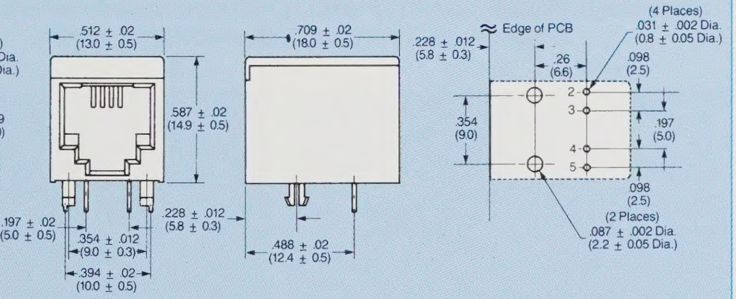
	CUJ62H02F001	CUJ64H04F001
Number of Lines	2 (Opening is for 6 line capability)	4 (Opening is for 6 line capability)
Operating Temperature	−25°C to +60°C	
Rated Voltage (Between Lines)	150VDC	
Rated Current	1ADC	
Tested Voltage (Between Lines)	375VDC	
Insulation Resistance (Between Lines)	10MΩ	
Impedance (Pin 3 & 4)	—	40Ω (at 100 MHz)

DIMENSIONS: in. (mm)

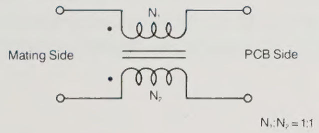
CUJ62H02F001

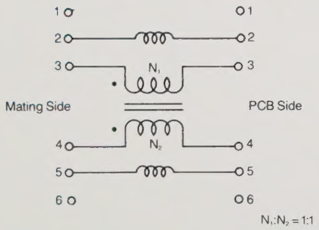


CUJ64H04F001

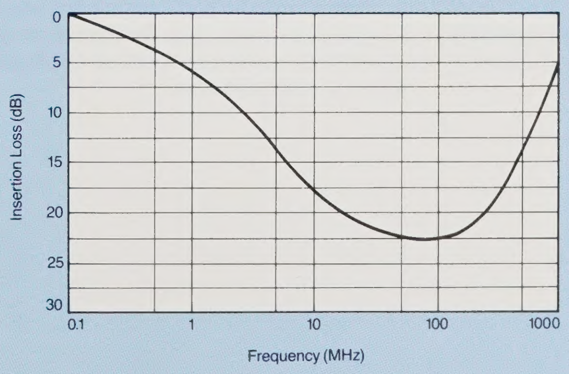


CIRCUIT DIAGRAMS



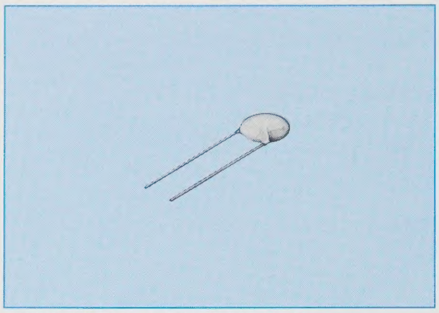


INSERTION LOSS CHARACTERISTICS*

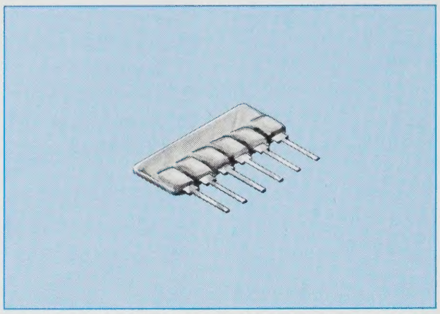


*For common mode filter portion of connector

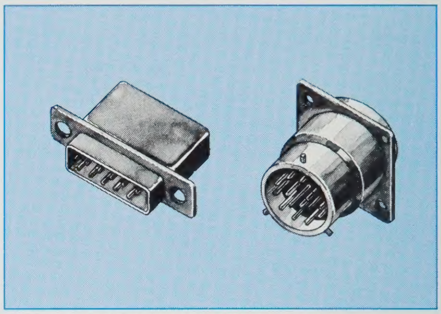
OTHER MURATA ERIE PRODUCTS



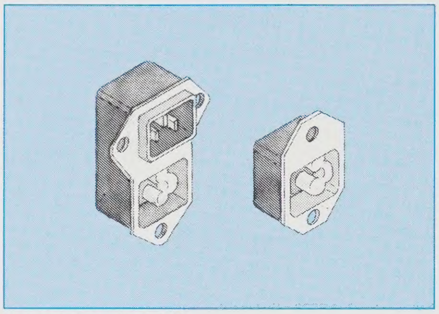
DISC SAFETY CAPACITORS...
Ceramic disc capacitors for bypass and across-line applications. Meet UL, CSA, VDE, etc. specifications.



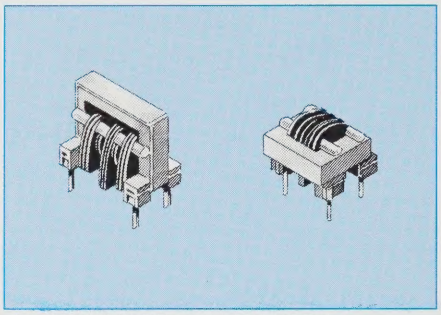
CAPACITORS/RESISTOR NETWORKS...
Single in-line packages in both standard and custom configurations to meet a variety of filtering requirements.



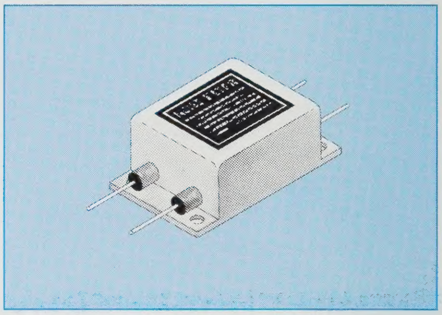
CYLINDRICAL AND 'D' FILTER CONNECTORS...
A complete selection in standard and custom configurations meeting all applicable MIL specifications.



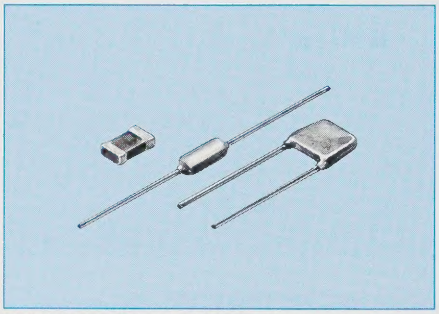
AC LINE FILTERS...
One of industry's broadest lines. Two and three wire units in a large selection of current ratings. UL, CSA and TUV listed.



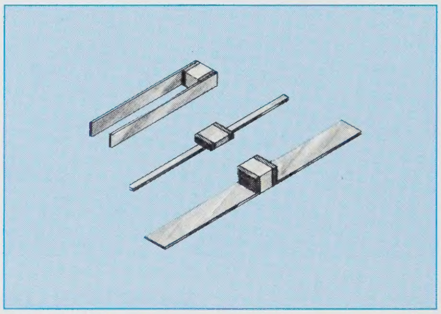
COMMON MODE CHOKE COILS...
A complete selection of common mode choke coils for noise reduction in a wide variety of consumer electronic and data processing equipment.



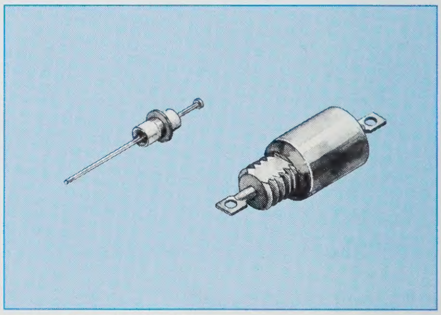
NOISE FILTERS FOR AC LINES...
Complete line of filters to suppress noise from AC lines. Aid in meeting FCC and VDE specifications. Recognized by major safety organizations.



MONOLITHIC CERAMIC CAPACITORS...
In chip and conformal coated units. Microwave chips.

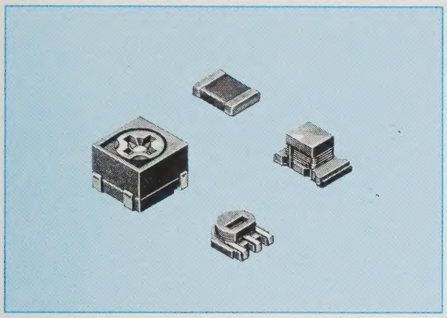


HI-Q CHIPS...
High performance precision components for miniature state-of-the-art microwave circuit applications.

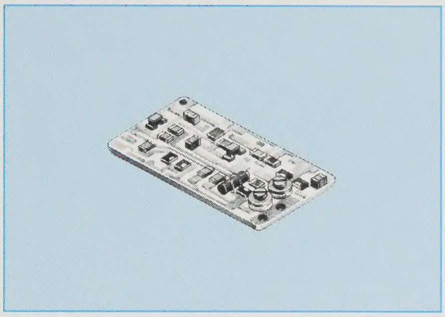


EMI/RFI FILTERS...
L, T, PI and C types to 30 GHz in a variety of configurations including filter connectors. Many to MIL specifications.

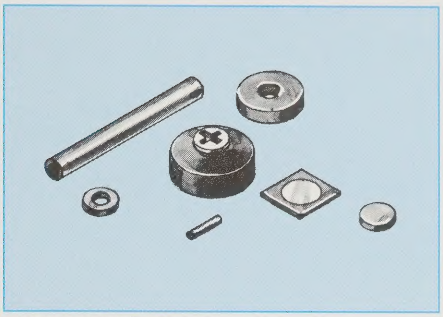
OTHER MURATA ERIE PRODUCTS



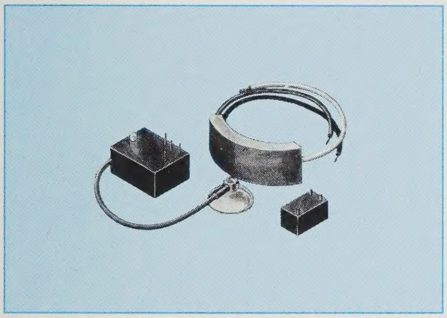
SURFACE MOUNTED COMPONENTS...
Capacitors, inductors, resistors, potentiometers and more for state-of-the-art circuit applications.



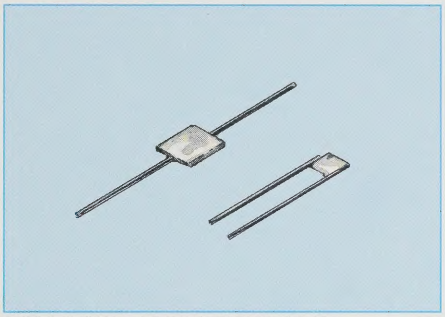
HYBRID I.C.'s...
Custom designed to meet specific application requirements for amplifiers, tuners, control circuits, etc.



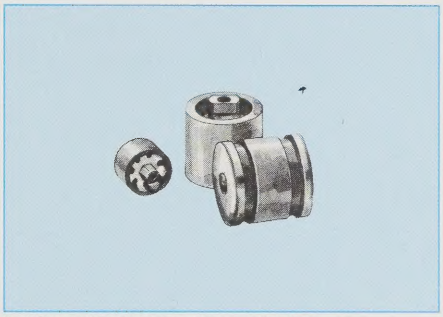
RESOMICS®...
Ceramic microwave dielectric resonators for filters, oscillators, and waveguides to 50GHz with Q's over 10,000.



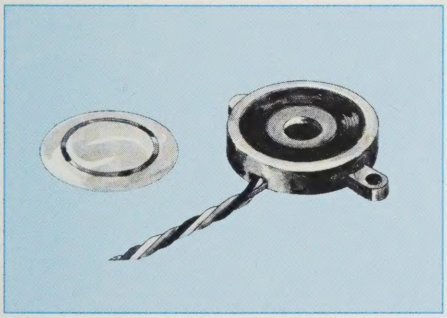
HIGH VOLTAGE POWER SUPPLIES...
A complete line for military, commercial, industrial and medical applications in a variety of KV and mA ratings.



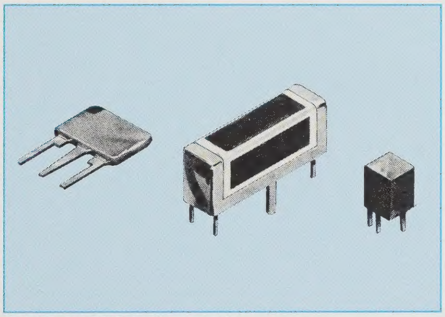
UY UNICERAM MINIATURE CERAMIC CAPACITORS...
Offer the highest available Q for applications where low inductance is essential.



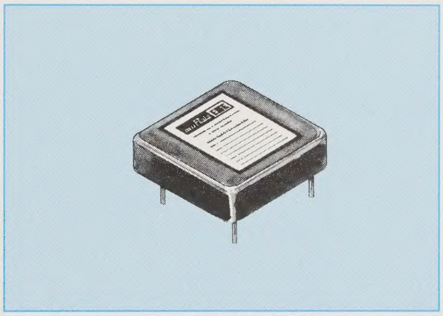
HIGH VOLTAGE CERAMIC CAPACITORS...
From 7.5KV to 40KV in capacities and power handling capabilities for every application requirement.



PIEZO-ALARMS...
For audio signaling applications can be supplied as either cased or uncased units and in a variety of sizes and frequencies.



CERAMIC FILTERS...
For both communications and consumer AM, FM and TV applications in IF and discriminator circuits.



CRYSTAL OSCILLATORS and CRYSTAL FILTERS...In standard and custom designs for precision frequency control and filtering over a wide frequency range.

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